DESIGN DATA				
Traffic	Average Daily			
Current: 2023	Pass: 4261	Trucks: 1622	Total: 5883	
Preventive Maintenance				

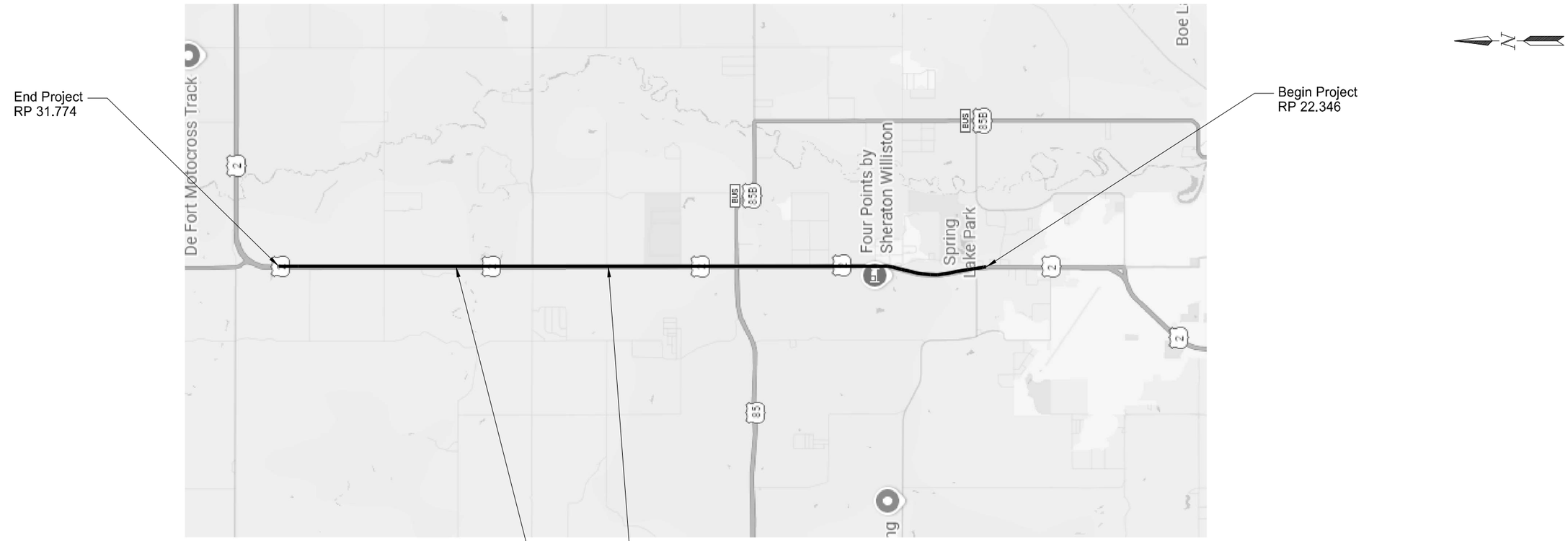
STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	24776	1	1

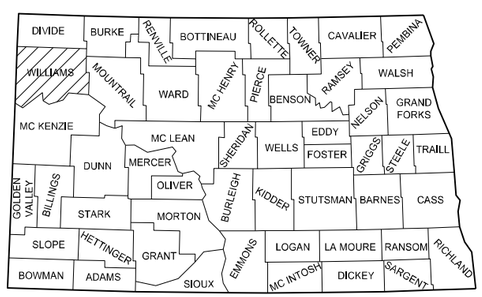
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

NH-7-002(195)022
24776
Williams County
US-2 West Bound
2 MI N of Williston to Jct US-85
CPR

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	04/01/2025
Supplemental Specifications	NONE

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
NH-7-002(195)022	9.348	9.428





STATE COUNTY MAP

DESIGNER
Bhanuprakash Yadav Souta
DESIGNER
DESIGNER

ND DEPARTMENT OF TRANSPORTATION
Williston District

Billy P. Gothberg 03/23/26

NDDOT -Williston District

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

3/18/2026 4:09:40 PM rdicinno F:\Williston\Project\2026\NH-7-002(195)022_24776\Microstation\001 TS_Title sheet.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	2	1

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D-550-4	Transverse Expansion Joint Detail
D-550-5	Transverse Construction Joint
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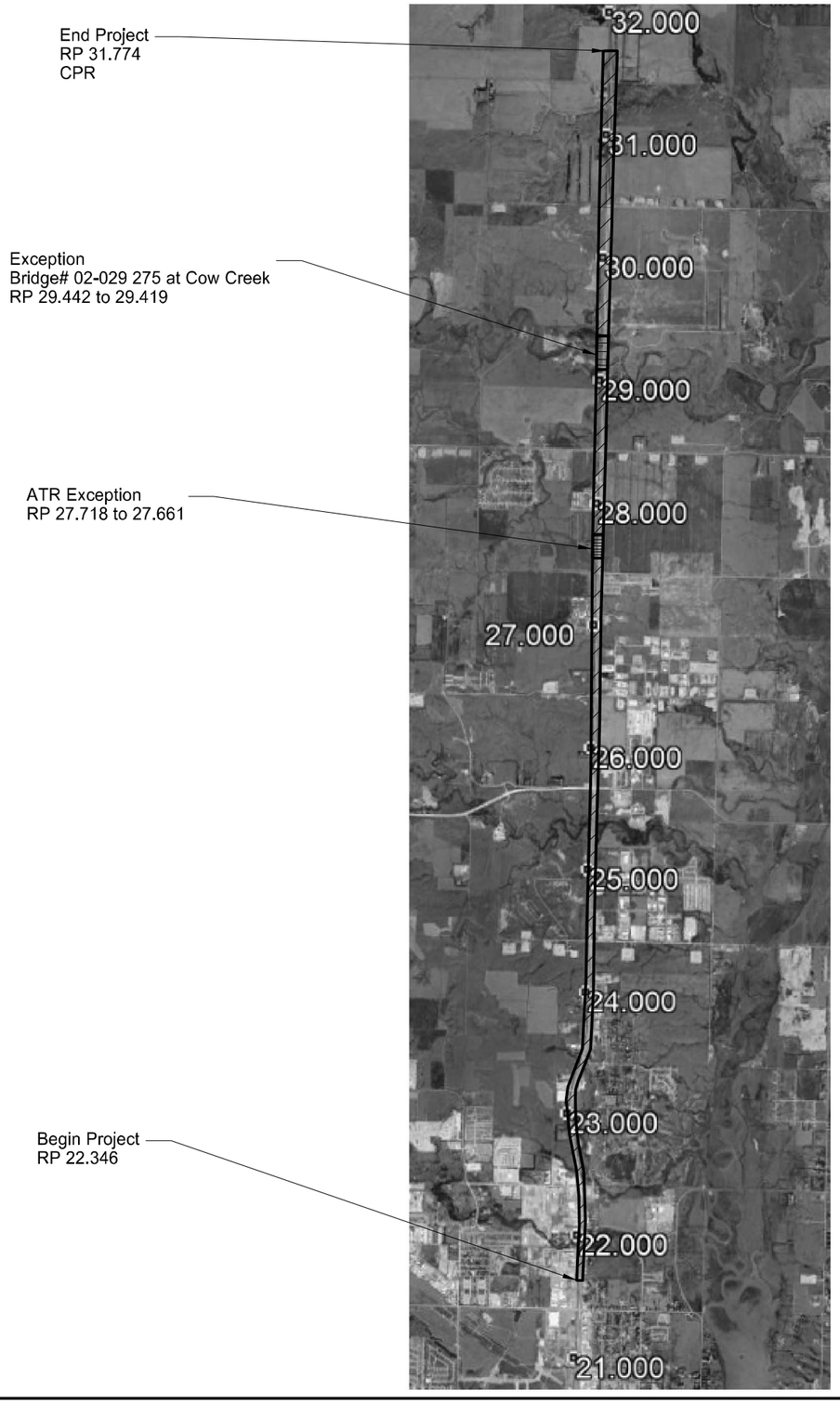
SPECIAL PROVISIONS

Number	Description
299(25)	Concrete Pavement Repair Surface Tolerance

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	4	1



End Project
RP 31.774
CPR

Exception
Bridge# 02-029 275 at Cow Creek
RP 29.442 to 29.419

ATR Exception
RP 27.718 to 27.661

Begin Project
RP 22.346

CPR

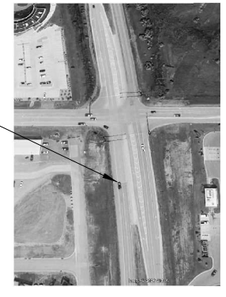
Bridge Exception
RP 29.187 - 29.329

ATR Exception
RP 27.670 - 27.708

End Project
RP 31.774

N

Begin Project
RP 22.346



Scope of Work
US 2 WB CPR
2 MI N OF WILLISTON TO JCT US 85

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3/19/2026 1:02:41 PM rdicinno F:\Williston\Project\2026\NH-7-002(195)022_24776\Microstation\004_SW_001.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	6	1

NOTES

105-P01 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.

107-P01 MAINTAINING TRAFFIC – UNEVEN SHOULDER: If a shoulder and the adjacent lane are uneven due to milling or paving operations, the requirements of Section 704.04 O, "Traffic Control for Uneven Pavement" apply. If the uneven shoulder and adjacent lane are due to other circumstance, the contents of this note apply. If, at the end of the work-day, drop-offs greater than 2 inches and less than 18 inches or slopes steeper than 4:1 exist between the edge of a traffic lane and the outside edge of the proposed roadway, perform one of the following actions:

- Construct a traversable wedge in the area of the drop-off or steep slope; or
- Close the lane adjacent to the drop-off or steep slope and provide 24-hour flagging or pilot car operations.

When constructing a wedge, construct a wedge composed of aggregate or earthen materials with a 4:1 or flatter slope along the entire length of the area. Compact materials using Type C compaction, as specified in 203.04 G.4, "Compaction Control Type C".

Install stackable vertical panels that meet the requirements of Section 704.03 H, "Stackable Vertical Panels", along the edge of the driving lane closest to the wedge.

The Engineer will measure stackable vertical panels as specified in Section 704.05, "Method of Measurement" and will pay for panels as specified in Section 704.06, "Basis of Payment".

The Engineer will not measure material used to construct the wedge. Include the cost of materials, equipment, labor, and incidentals required for this operation in the price bid for Concrete Pavement Repair – Full Depth - Doweled.

If a 4:1 or flatter wedge is not installed, provide 24 hour flagging or pilot car operations and associated traffic control at no additional cost to the Department.

570-P01 ITS EQUIPMENT: An Automatic Traffic Recorder is located on US-2 westbound @ RP 27.661 to 27.718. Do not perform CPR activities in this area. Discontinue grinding 150' on either side ITS equipment to avoid loops in this area.

570-P02 CONCRETE PAVEMENT REPAIR – FULL DEPTH: An additional 20% has been added to the quantities for "CONCRETE PAVEMENT REPAIR – FULL DEPTH - DOWELED", "SPALL REPAIR – PARTIAL DEPTH", "EPOXY COATED DEFORMED BARS", and "DOWELED CONTRACTION JOINT ASSEMBLY" to be used as directed by the engineer.

570-P03 APPROACH ROAD WAYS: Maintain at least one lane of traffic on all local roads and private drive approaches. Any temporary widening or aggregate surfacing that is required to accommodate this work will not be paid for separately. Include the cost of materials, equipment, labor and incidental required for this operation in the price of bid for concrete pavement repair-Full Depth-doweled.

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

704-525 TRAFFIC CONTROL FOR CONCRETE PAVEMENT REPAIR: Provide traffic control consisting of a temporary lane closure.

The maximum work zone length is five miles. The length of the work zone includes the daily construction area plus the longitudinal buffer space and does not include tapers. Lane closures may be less than five miles in length, dependent upon the overall length of the project.

Two work zones are allowed but must be separated by a three mile gap. The gap is considered the distance between the sign reestablishing the normal speed limit after the first work zone and the reduced speed ahead sign for second lane closure.

Place vertical panels on the roadway centerline adjacent to full depth repair areas. Place panels every 10 feet and use a minimum of two panels at each full depth repair area.

Place Type I barricades in front of each full depth removal area. Position barricades so that they do not encroach into the traffic lane.

The traffic control device list is based on two 5-mile lane closures and the following list:

1. Standard D-704-20, Type G;
2. Standard D-704-34 – quantities include 97 delineator drums for approaches;
3. Standard D-704-34A.

The Department will pay for delineator drums used for approach access within the work zone at the contract unit price.

Quantities of Type I barricades and vertical panels are based on 173 full depth repair locations and 2 vertical panels per location. The Department will pay for additional barricades and panels at the contract unit price for the devices.

Remove or shorten lane closures after new concrete has reached the required strength for opening to traffic specified in Section 570.04 A.1.b, "Full Depth Repairs".

REGISTERED PROFESSIONAL ENGINEER
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PE-41105
DATE 03/23/26
NORTH DAKOTA

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
570	0240	DOWELED CONTRACTION JOINT ASSEMBLY	LF	1,061	1,061
570	0650	CONCRETE PAVEMENT REPAIR-FULL DEPTH-DOWELED	SY	8,093.47	8,093.47
570	1512	SPALL REPAIR-PARTIAL DEPTH	SF	6,797	6,797
570	1600	EPOXY COATED DEFORMED BARS	EA	5,141	5,141
702	0100	MOBILIZATION	L SUM	1	1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	3,000	3,000
704	1050	TYPE I BARRICADE	EA	173	173
704	1052	TYPE III BARRICADE	EA	10	10
704	1060	DELINEATOR DRUMS	EA	97	97
704	1067	TUBULAR MARKERS	EA	189	189
704	1080	STACKABLE VERTICAL PANELS	EA	346	346
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	2	2
760	0001	RUMBLE STRIPS - CONCRETE SHOULDER	MILE	0.95	0.95
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED	LF	112,005	112,005
762	0134	EPOXY PVMT MK 12IN LINE-GROOVED	LF	8,165	8,165
762	0136	EPOXY PVMT MK MESSAGE-GROOVED	SF	768	768

ESTIMATE NUMBER: 25502 ESTIMATE TYPE: FINAL FINALIZED: N RUN DATE: 03/18/2026 TIME: 15:16:09

BASIS OF ESTIMATE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	10	1

WB Concrete Pavement Repair Locations

RP	Full Depth (SY) 570 - 0650	Dowel Joint (LF) 570 -0240	Partial Depth (SF) 570 - 1512	Stitch (LF) Not a bid item	Epoxy coated Deformed bars (No's) 570 - 1600
22	356.00	0	237	776	404
23	477.11	44	356	953	500
24	620.00	86	884	562	294
25	827.67	68	769	1090	573
26	1468.89	206	626	992	526
27	471.89	46	596	618	322
28	625.44	93	995	558	297
29	1254.00	323	552	1102	578
30	467.67	18	428	950	501
31	175.89	0	221	541	289
TOTAL	**6744.56**	**884**	**5664**	**8142**	**4284**
+ 20%	**8093.47**	**1061**	**6797**	**9770**	**5141**

Permanent Stripping

6" **GROOVED EPOXY 762-0131**

White Edge Line (Driving Lane Edge)

RP 31.774 to 22.346 = 9.428 miles @ 5280 LF/mile = 49,780 LF Solid White

Yellow Edge Line (Passing Lane Edge)

RP 31.774 to 22.346 = 9.428 miles @ 5280 LF/mile = 49,780 LF Solid Yellow

Centerline White Skips

RP 31.774 to 22.346 = 9.428 miles @ 1320 LF / mile = 12,445 LF White Skips

Total 6" Grooved Epoxy

White Edge Line + Yellow Edge Line + Centerline White skips

49,780 + 49,780 + 12,445 = 112,005 LF

12" GROOVED EPOXY 762-0134

Turn Lanes

Location		Type	Start RP	End RP	Total	Units
63rd St NW	Left Turn Lane	12" White	31.537	31.433	549	ft
62nd St NW	Left Turn Lane	12" White	30.552	30.437	607	ft
60th St NW	Right Turn Lane	12" White	28.559	28.439	634	ft
60th St NW	Left Turn Lane	12" White	28.539	28.439	528	ft
VAC U Jet	Right Turn Lane	12" White	28.310	28.181	681	ft
59th St NW	Left Turn Lane	12" White	27.566	27.431	713	ft
58th St NW	Left Turn Lane	12" White	26.504	26.429	396	ft
57th St NW	Right Turn Lane	12" White	25.833	25.680	808	ft
57th St NW	Left Turn Lane	12" White	25.747	25.680	354	ft
Energy St	Left Turn Lane	12" White	25.005	24.920	449	ft
56th St NW	Left Turn Lane	12" White	24.506	24.422	444	ft
Frontage Road	Left Turn Lane	12" White	23.996	23.921	396	ft
Frontage Road	Left Turn Lane	12" White	23.549	23.470	417	ft
Caron Transportation	Right Turn Lane	12" White	23.282	23.197	449	ft
58th St W	Right Turn Lane	12" White	22.486	22.416	370	ft
59th St W	Left Turn Lane	12" White	22.486	22.416	370	ft
	Total	**12" White**			**8165**	**ft**

MESSAGE GROOVED EPOXY 762-0136

16 Turn Lanes X 3 arrows per lane X 16 SF per arrow = **768 SF Messages**

RUMBLE STRIPS 760-0001

Sum of Full Depth Repair lengths (See Section 11 table locations)

Concrete shoulder 5016 LF/5280 LF per mile = **0.950 Mile**

Basis Of Estimate
US 2 WB CPR
RP 22.346 to 31.774

REGISTERED PROFESSIONAL ENGINEER
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DATE 03/23/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	1

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"						Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	4060	Driving Lane								2	2	4			
	4085	Driving Lane								2	2	4			
	4087	Driving Lane								6	2	12			
		Passing Lane								13	2	26			
	4278	Driving Lane	14	6	9.33		14	2	14						58th ST W (Junction)
		Passing Lane	14	6	9.33		14	2	14						58th S1 W (Junction)
		Left Turn Lane	14	6	9.33		14	2	14						58th ST W (Junction)
	4340	Driving Lane	14	14	21.78		28	5							58th ST W (Junction)
		Passing Lane								7	2	14			2 partial depths
		Left Turn Lane	14	14	21.78		28	5							
	4398	Passing Lane								3	2	6			
	4414	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	4486	Passing Lane	6	6	4.00		6	4	6						
	4630	Driving Lane								2	2	4			
	4710	Right Turn Lane											70	36	
	4813	Passing Lane								3	2	6			
	4910	Right Turn Lane											84	43	
		Driving Lane	7	14	10.89		14	10							
	5158	Driving Lane								14	2	28	84	43	
		Passing Lane								6	2	12			2 partial depths
22		Left Turn Lane								5	2	10			
	5205	Passing Lane								3	2	6			
	5320	Driving Lane											112	57	
	5385	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13						
	5520	Driving Lane											56	29	
	5638	Passing Lane								3	2	6			
	5730	Passing Lane	6	6	4.00		6	4	6						
	5780	Driving Lane	6	14	9.33		12	10							
	6012	Driving Lane								4	2	8			
		Passing Lane								4	2	8			
	6150	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	6	8.67		13	2	13						
	6342	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13				70	36	
	6378	Driving Lane											14	8	
	6500	Driving Lane	14	6	9.33		14	2	14				28	15	
		Passing Lane	13	6	8.67		13	2	13						
	6718	Driving Lane											6	4	
	6887	Driving Lane								6	3	18			
		Passing Lane								8	2	16			
	7004	Driving Lane	14	14	21.78		28	5					28	15	

*0.0001 Miles

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WB US 2
CPR Locations
RP 22.3460 to 22.7004

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	2

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
22	7004	Passing Lane	6	6	4.00		6	4	6						
	7074	Driving Lane											28	15	
	7154	Passing Lane								2	2	4			
	7342	Driving Lane											98	50	
	7403	Driving Lane								3	3	9	28	15	
		Passing Lane								8	2	16			
	7570	Driving Lane											28	15	
		Passing Lane								4	2	8			
	7768	Driving Lane	8	6	5.33		8	4	8						
	8023	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	8255	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13						
	8292	Driving Lane											14	8	
	8404	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	8532	Passing Lane								2	2	4			
	8961	Passing Lane								2	2	4			
	9080	Passing Lane								2	2	4			
	9361	Driving Lane											28	15	
	9752	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	Total				**356.00**	**0**	**477**	**114**	**255**			**237**	**776**	**404**	
23	768	Driving Lane								3	2	6			
		Passing Lane								4	2	8			2 partial depths
	910	Driving Lane								5	2	10			
		Passing Lane								5	2	10			
	986	Passing Lane								2	2	4			
	1058	Driving Lane	14	6	9.33		14	4	14						
		Passing Lane	13	6	8.67		13	4	13						
	1100	Passing Lane								4	2	8			
	1500	Passing Lane								2	2	4			
	1586	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	1869	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	6	8.67		13	2	13						
	2050	Driving Lane	6	6	4.00		6	4	6	2	2	4			
	2180	Driving Lane	8	6	5.33		8	4	8						
	2288	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	2360	Passing Lane								3	2	6			

*0.0001 Miles

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WB US 2
CPR Locations
RP 22.7004 to 23.2360

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	3

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	2580	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	2682	Driving Lane								4	2	8	28	15	2 partial depths
		Passing Lane								4	2	8			
	2794	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	3230	Driving Lane								2	2	4			
		Passing Lane	6	6	4.00	6	6	4	6						Basket
	3340	Passing Lane	6	6	4.00		6	4	6						
	3427	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	3480	Passing Lane								2	2	4			
	3580	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	3624	Driving Lane											28	15	
		Passing Lane								2	2	4			
	3700	Driving Lane								2	2	4			
	3763	Driving Lane								4	2	8			2 partial depths
		Passing Lane								10	2	20			
	3909	Passing Lane								6	2	12			
		Passing Lane								2	2	4			
23	3932	Driving Lane								3	2	6			
	3990	Driving Lane								3	2	6			
		Passing Lane	6	6	4.00		6	4	6						
	4120	Driving Lane											28	15	
	4340	Driving Lane								2	2	4	56	29	
		Passing Lane	6	6	4.00		6	4	6						
	4490	Driving Lane								4	2	8	28	15	
		Passing Lane								2	2	4			
	4612	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	4705	Driving Lane	6	6	4.00		6	4	6	2	2	4	28	15	
		Passing Lane								4	2	8			2 partial depths
	4790	Driving Lane											35	19	
	4887	Driving Lane	6	6	4.00		6	4	6						
	5068	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	5197	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	5229	Driving Lane											42	22	
		Passing Lane								2	2	4			
	5325	Driving Lane								2	2	4			
		Passing Lane								2	2	4			

*0.0001 Miles

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WB US 2
CPR Locations
RP 23.2360 to 23.5325

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	4

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	5370	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	5491	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	5608	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	5707	Driving Lane								6	2	12			
		Passing Lane								7	2	14	42	22	
	5927	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	6005	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	6207	Driving Lane	6	6	4.00		6	4	6						
	6280	Driving Lane											28	15	
	6510	Driving Lane	6	6	4.00		6	4	6				78	40	
		Passing Lane	13	6	8.67		13	2	13						
	6722	Driving Lane								4	2	8	42	22	
		Passing Lane								2	2	4			
	6897	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	6933	Driving Lane								2	2	4			
23		Passing Lane								4	2	8			
	6960	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	7011	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	7	10.11		13	2	13						
	7140	Driving Lane								2	2	4			
	7331	Driving Lane								2	2	4			
	7507	Passing Lane											14	8	
	7680	Driving Lane											98	50	
	7810	Driving Lane								3	2	6			
	7970	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	8122	Driving Lane											28	15	
	8560	Driving Lane											126	64	
	8690	Driving Lane								6	2	12	42	22	
		Passing Lane	6	56	37.33	18	12	40					56	29	
	8769	Driving Lane	14	14	21.78		28	5					28	15	
	8925	Driving Lane	14	6	9.33		14	2	14				28	15	
		Passing Lane	13	6	8.67		13	2	13						
	9000	Driving Lane											42	22	
	9135	Driving Lane	14	14	21.78		28	5					14	8	
		Passing Lane	13	6	8.67		13	2	13						

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 23.5325 to 23.9135

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	5

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	9282	Passing Lane	6	20	13.33	6	6	14	6						
	9389	Passing Lane								2	2	4			
	9468	Driving Lane	6	6	4.00		6	4	6				14	8	
	9705	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
23	9762	Driving Lane								2	2	4			
		Passing Lane	6	6	4.00		6	4	6						
	9852	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	9954	Driving Lane	14	28	43.56	14	28	10							
		Passing Lane	13	6	8.67		13	2	13						
	Total				**477.11**	**44**	**593**	**195**	**497**			**356**	**953**	**500**	
	1673	Driving Lane								2	2	4			
	1917	Passing Lane	13	42	60.67	26	26	15					28	15	
	2014	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13				50	26	
	2068	Passing Lane											28	15	
	2525	Driving Lane								2	2	4			
	2661	Passing Lane								3	2	6			
	2828	Driving Lane								2	2	4			
	2944	Passing Lane								2	2	4			
	3035	Passing Lane								2	2	4			
	3073	Driving Lane	14	14	21.78		28	5							
		Passing Lane	6	6	4.00		6	2	6						
	3159	Passing Lane	13	6	8.67		13	2	13						
	3205	Passing Lane								3	2	6			
24	3335	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	3454	Driving Lane	14	7	10.89		14	3	14						
	3488	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5					56	29	
	3525	Driving Lane								2	2	4			
	3655	Driving Lane											14	8	
		Passing Lane								2	2	4			
	3720	Passing Lane								2	2	4			
	3822	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	3938	Passing Lane								2	2	4			
	3952	Driving Lane								6	2	12			
		Passing Lane								3	2	6			
	4000	Passing Lane								3	2	6			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 23.9135 to 24.4000

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	6

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	4032	Passing Lane								6	2	12			
	4377	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	4515	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	4570	Passing Lane								2	2	4			
	4655	Driving Lane								2	2	4			
	4705	Driving Lane								7	2	14			
		Passing Lane								6	2	12			
	4778	Passing Lane								4	2	8			
	4836	Driving Lane								5	2	10			
		Passing Lane								8	2	16			
	4951	Passing Lane								2	2	4			
	5011	Passing Lane								2	2	4			
	5099	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	5225	Driving Lane								3	2	6			
	5370	Driving Lane								3	2	6			
		Passing Lane								2	2	4			
	5502	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								4	2	8			
24	5585	Driving Lane								2	2	4			
		Passing Lane								3	2	6			
	5631	Driving Lane	14	6	9.33		14	2	14						
	5661	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	5695	Driving Lane											42	22	
	5706	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
		Left Turn lane	16	6	10.67		16	2	16						
	5720	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	5925	Driving Lane	14	14	21.78		28	5	14						
		Passing Lane	13	7	10.11		13	3	13						
		Left Turn Lane	16	7	12.44		16	3	16						
	5985	Driving Lane								3	2	6			
		Passing Lane								4	2	8			2 partial depths
	6053	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
		Left Turn Lane	6	6	4.00		6	4	6						
	6185	Driving Lane	6	6	4.00		6	4	6						
	6310	Driving Lane	6	6	4.00	6		4	6				22	12	Basket
		Passing Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 24.4000 to 24.6310

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	7

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	6366	Driving Lane	6	6	4.00		6	4	6						
	6392	Driving Lane								6	2	12			
		Passing Lane								5	2	10			
	6480	Passing Lane								5	2	10			
	6550	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	6625	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	6675	Driving Lane								6	2	12			
		Passing Lane								2	2	4			
	6720	Driving Lane								2	2	4			
	6763	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	6830	Driving Lane	6	6	4.00	6	6	4	6				70	36	Basket
		Passing Lane								13	2	26			
	6883	Driving Lane											38	20	
	6907	Driving Lane								3	2	6			
		Passing Lane	13	6	8.67		13	2	13						
	6985	Driving Lane											42	22	
	7035	Driving Lane								2	2	4			
		Passing Lane								6	2	12			
24	7120	Driving Lane								5	2	10			
		Passing Lane								2	2	4			
	7185	Driving Lane								4	2	8			
		Passing Lane								2	2	4			
	7209	Driving Lane	6	6	4.00		6	4	6						
	7272	Driving Lane								2	2	4	18	10	
		Passing Lane								7	2	14			
	7367	Passing Lane								6	2	12			
	7411	Driving Lane								3	2	6			
		Passing Lane								3	2	6			
	7522	Passing Lane								2	2	4	42	22	
	7550	Driving Lane								7	2	14			
		Passing Lane								7	2	14			
	7650	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								3	2	6			
	7716	Driving Lane								4	2	8			2 partial depths
		Passing Lane								3	2	6			
	7743	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	7752	Passing Lane								7	2	14			
	7847	Driving Lane	7	6	4.67		7	4	7						
	7907	Driving Lane								6	2	12			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 24.6310 to 24.7907

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	8

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY 570-0650	Basket (LF)	Bar Type			Dimensions		SF 570-1512	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)		#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)		Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	7941	Passing Lane								2	2	4			
	7982	Driving Lane	6	6	4.00		6	4	6						
	8020	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								3	2	6			
	8080	Driving Lane	7	6	4.67		7	4	7						
		Passing Lane								6	2	12			
	8126	Driving Lane								7	2	14			
		Passing Lane								2	2	4			
	8170	Driving Lane	7	6	4.67		7	4	7						
		Passing Lane								5	2	10			
	8250	Driving Lane								2	2	4			
		Passing Lane								7	2	14			
	8316	Driving Lane								5	2	10			
		Passing Lane								2	2	4			
	8366	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	6	8.67		13	2	13						
	8424	Driving Lane								3	2	6			
		Passing Lane								5	2	10			
	8488	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								13	2	26			
24	8540	Driving Lane	7	6	4.67		7	4	7						
		Passing Lane								13	2	26			
	8604	Driving Lane								4	2	8			
	8648	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								13	2	26			
	8730	Driving Lane	7	6	4.67		7	4	7						
		Passing Lane								7	2	14			
	8822	Driving Lane							0	6	2	12			
		Passing Lane								3	2	6			
	8878	Driving Lane								6	2	12			
	8945	Driving Lane	14	7	10.89		14	3	14				112	57	
	8948	Driving Lane	14	6	9.33	14	14	2	14						Basket
		Passing Lane	7	6	4.67	7	7	4	7						Basket
	9045	Driving Lane	14	6	9.33	14	14	2	14						Basket
		Passing Lane	13	6	8.67	13	13	2	13						Basket
	9096	Driving Lane								2	2	4			
	9140	Driving Lane	7	6	4.67		7	4	7						
		Passing Lane								13	2	26			
	9192	Driving Lane								2	2	4			
	9245	Driving Lane	7	6	4.67		7	4	7						
		Passing Lane								6	2	12			
	9320	Driving Lane	6	6	4.00		6	4	6						

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 24.7907 to 24.9320

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	9

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
24	9320	Passing Lane								13	2	26			
	9385	Passing Lane								3	2	6			
	9464	Driving Lane								4	2	8			
		Passing Lane								2	2	4			
	9494	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	9530	Passing Lane								6	2	12			
	9648	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								6	2	12			2 partial depths
	9760	Driving Lane								3	2	6			
		Passing Lane								2	2	4			
	9860	Passing Lane								3	2	6			
	9974	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	Total				**620.00**	**86**	**795**	**214**	**489**			**884**	**562**	**294**	
25	1176	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	1390	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
		Left Turn Lane	6	6	4.00		6	4	6						
	1463	Driving Lane								4	2	8			
		Passing Lane								2	2	4			
	1508	Driving Lane								8	2	16			
		Passing Lane								4	2	8			
	1692	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								2	2	4			
	1761	Driving Lane								4	2	8	42	22	
	1820	Driving Lane	14	14	21.78		28	5					56	29	
		Passing Lane	13	7	10.11		13	3	13						
	1948	Driving Lane	6	6	4.00		6	4	6						
	2008	Driving Lane	14	7	10.89		14	3							
	2100	Driving Lane	6	6	4.00		6	4							
		Passing Lane								4	2	8			
	2170	Driving Lane	14	42	65.33	28	28	15							
	2210	Driving Lane	14	14	21.78		28	5					14	8	
	2230	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	13	7	10.11		13	3	13						
	2300	Driving Lane								2	2	4			
	2409	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		7	3	7						
	2440	Passing Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
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DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 24.9320 to 25.2440

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	10

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	2559	Driving Lane	14	28	43.56	14	28	10							
		Passing Lane	13	21	30.33	13	13		13						
	2652	Driving Lane								4	2	8	42	22	
		Passing Lane								4	2	8			
	2756	Driving Lane	14	14	21.78		28	5					28	15	
		Passing Lane								5	2	10			2 partial depths
	2833	Driving Lane											14	8	
	2930	Driving Lane	14	14	21.78		28	5					28	15	
		Passing Lane	13	7	10.11		13	3	13						
	2955	Driving Lane								4	2	8			
		Passing Lane								4	2	8			
	3043	Driving Lane	13	21	30.33	13	13	8	13						Basket
		Passing Lane	6	6	4.00		6	4	6						
	3212	Driving Lane								4	2	8	56	29	
		Passing Lane								6	2	12	7	5	
	3290	Driving Lane								2	2	4			
		Passing Lane								4	2	8	56	29	
	3346	Driving Lane								2	2	4			
		Passing Lane								2	22	44			
	3385	Passing Lane								13	2	26			
	3476	Driving Lane	14	6	9.33		14	2	14						
25	3491	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	3560	Driving Lane								2	2	4	28	15	
		Passing Lane	13	6	8.67		13	2	13						
	3647	Passing Lane								2	2	4			
	3733	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	13	6	8.67		13	2	13						
	3841	Passing Lane								2	2	4			
	3893	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	3948	Driving Lane	6	6	4.00		6	4	6						
	4042	Driving Lane	14	14	21.78		28	5							
	4132	Driving Lane								5	2	10	42	22	
		Passing Lane								4	2	8			
	4190	Driving Lane								2	2	4			
		Passing Lane								13	7	91			
	4250	Passing Lane								10	2	20			
	4334	Driving Lane								2	2	4			
		Passing Lane								4	2	8			
	4444	Driving Lane								2	2	4			
		Passing Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 25.2440 to 25.4444

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	11

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	4530	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	4594	Passing Lane								2	2	4			
	4650	Driving Lane								4	2	8			
		Passing Lane	13	6	8.67		13	2	13						
	4754	Driving Lane								4	2	8	28	15	
		Passing Lane								6	2	12			
	4800	Driving Lane								2	2	4			
	4865	Passing Lane								2	2	4			
	4934	Passing Lane								4	2	8			
	4982	Driving Lane								3	2	6			
	5032	Driving Lane								3	2	6			
		Passing Lane								4	2	8			
	5144	Passing Lane								2	2	4	28	15	
	5324	Driving Lane								6	2	12			
		Passing Lane								2	2	4			
	5381	Driving Lane											14	8	
		Passing Lane								6	2	12			
	5452	Driving Lane								3	2	6			
		Passing Lane								9	2	18			
	5567	Driving Lane								8	2	16			
25		Passing Lane								2	2	4			
	5658	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	6	6	4.00		6	4	6						
	5786	Driving Lane								4	2	8			
	5872	Driving Lane								2	2	4			
	5946	Passing Lane								2	2	4			
	6010	Driving Lane								4	2	8			
		Passing Lane								2	2	4			
	6132	Driving Lane											98	50	
	6226	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								2	2	4			
	6296	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	6336	Driving Lane								2	2	4			
		Passing Lane	13	14	20.22		26	5							
	6388	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane								3	2	6			
	6415	Driving Lane								2	2	4			
	6495	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	6	6	4.00		6	4	6						
	6603	Driving Lane	13	7	10.11		13	3	13						
		Passing Lane	6	6	4.00		6	4	6						

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 25.4444 to 25.6603

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	12

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	6737	Driving Lane								4	2	8	42	22	
		Passing Lane								13	2	26			
	6972	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	7080	Driving Lane	6	14	9.33		6	20	6						
		Passing Lane	6	13	8.67		6	20	6						
	7827	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	8027	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	8123	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	8212	Driving Lane								2	2	4			
		Passing Lane								13	2	26			
	8284	Passing Lane	13	7	10.11		13	3	13						
	8402	Driving Lane	13	7	10.11		13	3	13						
		Passing Lane	6	6	4.00		6	4	6				70	36	
	8517	Driving Lane	6	6	4.00		6	4	6				70	36	
		Passing Lane	6	6	4.00		6	4	6						
	8583	Driving Lane								4	2	8	42	22	
		Passing Lane								4	2	8			
25	8657	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	8881	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	13	14	20.22		26	5					134	68	
	8920	Passing Lane											56	29	
	8963	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13				14	8	
	8991	Driving Lane											14	8	
	9078	Driving Lane								2	2	4			
		Passing Lane								3	2	6			
	9118	Driving Lane	14	14	21.78		28	5							
		Passing Lane	6	6	4.00		6	2	6						
	9150	Driving Lane											14	8	
	9171	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								4	2	8			
	9240	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	9318	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	6	6	4.00		6	4	6						
	9380	Driving Lane								2	2	4			
		Passing Lane	6	6	4.00		6	4	6						
	9453	Driving Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
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DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 25.6603 to 25.9453

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	13

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
25	9453	Passing Lane								6	2	12			
	9528	Driving Lane	6	8	5.33		6	6	6				28	15	
		Passing Lane	6	6	4.00		6	4	6						
	9583	Passing Lane								6	2	12			
	9649	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	13	7	10.11		13	3	13						
	9730	Driving Lane	6	6	4.00		13	4	13						
		Passing Lane	13	7	10.11		13	3	13				14	8	
	9828	Passing Lane								6	2	12			
	9910	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	9975	Driving Lane											11	7	
	Total				**827.67**	**68**	**954**	**312**	**522**			**769**	**1090**	**573**	
26	1867	Driving Lane								2	2	4			
		Passing Lane								5	2	10			
	1989	Driving Lane	14	6	9.33		14	2	14				70	36	
		Passing Lane	13	6	8.67		13	2	13						
	2100	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	2177	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	2257	Driving Lane	14	35	54.44	28	14	13	14						
		Passing Lane	13	7	10.11		13	3	13						
	2488	Driving Lane	6	6	4.00		6	4	6				21	12	
	2522	Driving Lane	14	14	21.78		28	5							
	2577	Driving Lane								4	2	8	56	29	
		Passing Lane								4	2	8			
	2682	Driving Lane	14	28	43.56	14	28	10					42	22	
		Passing Lane								4	2	8			
	2750	Driving Lane											14	8	
	2782	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	2900	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	2945	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	3015	Driving Lane	6	14	9.33		6	10	6						
	3062	Passing Lane	6	6	4.00		6	4	6						
	3178	Driving Lane	14	20	31.11	14	14	7	14				42	22	Basket
		Passing Lane	13	35	50.56	26	13	13	13				10	6	
	3288	Driving Lane	14	35	54.44	28	14	13	14				21	12	2 Baskets

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
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DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 25.9453 to 26.3288

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	14

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch			
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars		
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600		Notes
	3288	Passing Lane	13	28	40.44	13	26	10								2 Baskets
	3358	Driving Lane	14	7	10.89	14		3	28							Basket
		Passing Lane								13	2	26				
	3404	Driving Lane	14	6	9.33		14	2	14				21	12		
	3454	Driving Lane								6	2	12				
		Passing Lane								3	2	6				
	3505	Driving Lane								2	2	4				
		Passing Lane	13	6	8.67		13	2	13							
	3570	Driving Lane								2	2	4				
		Passing Lane	13	6	8.67		13	2	13							
	3630	Driving Lane	14	14	21.78		28	5								
		Passing Lane	13	7	10.11		13	3	13							
	3678	Driving Lane											42	22		
	3800	Driving Lane	6	6	4.00	6		4	12							Basket
		Passing Lane	6	6	4.00		6	4	6							
	3845	Driving Lane	14	14	21.78		28	5								
		Passing Lane	13	14	20.22		26	5								
	3891	Driving Lane								2	2	4				
		Passing Lane								6	2	12				
	3950	Driving Lane								2	2	4				
	4012	Driving Lane								2	2	4				
26		Passing Lane	13	6	8.67		13	2	13							
	4230	Driving Lane	14	21	32.67	14	14	8	14				35	19		
		Passing Lane	13	7	10.11		13	3	13							
	4300	Driving Lane	6	7	4.67	6		4	12							Basket
		Passing Lane								2	2	4				
	4358	Driving Lane								3	2	6				
	4482	Driving Lane	7	7	5.44		7	6	7							
	4514	Driving Lane											42	22		
	4536	Driving Lane	6	6	4.00		6	4	6							
	4717	Driving Lane	14	14	21.78		28	5					14	8		
		Passing Lane	13	14	20.22		26	5								
	4805	Driving Lane											35	19		
	4845	Driving Lane								4	2	8				
		Passing Lane								4	2	8				
	4900	Passing Lane								2	2	4				
	4918	Driving Lane								2	2	4				
		Passing Lane								2	2	4				
	4967	Driving Lane	14	14	21.78		28	5								
		Passing Lane	13	14	20.22		26	5								
	4980	Passing Lane								2	2	4				
	5061	Driving Lane	14	14	21.78		28	5								
		Passing Lane	13	14	20.22		26	5								

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
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DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 26.3288 to 26.5061

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	15

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	5178	Driving Lane	6	6	4.00	6		4	12						Basket
		Passing Lane	13	6	8.67	13		2	26						Basket
	5255	Driving Lane	6	6	4.00	6		4	12						Basket
		Passing Lane	13	6	8.67		13	2	13						
	5306	Driving Lane								3	2	6			
		Passing Lane								2	2	4			
	5356	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	6	8.67		13	2	13						
	5474	Passing Lane	6	14	9.33	6		4	12						Basket
	5487	Passing Lane	6	6	4.00		6	4	6						
	5553	Driving Lane								5	2	10			
	5708	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	5877	Driving Lane								3	2	6	28	15	
		Passing Lane								2	2	4			
	6020	Passing Lane								3	2	6			
	6042	Passing Lane								3	2	6			
	6261	Driving Lane											28	15	
	6288	Passing Lane								8	2	16			
	6378	Passing Lane								2	2	4			
	6522	Driving Lane	14	14	21.78		28	5							
26		Passing Lane	13	14	20.22		26	5							
	6612	Driving Lane	14	6	9.33		14	2	14				14	8	
		Passing Lane	13	6	8.67		13	2	13						
	6722	Driving Lane	7	6	4.67		7	4	7						
	6801	Passing Lane								5	2	10			
	6841	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
		Passing Lane								3	2	6			
	6904	Driving Lane								2	2	4			
	7010	Driving Lane	14	14	21.78		28	5					28	15	
		Passing Lane	13	14	20.22		26	5							
	7033	Passing Lane								2	2	4			
	7048	Passing Lane								8	2	16			
	7112	Driving Lane	14	7	10.89		14	3	14				28	15	
		Passing Lane	13	7	10.11		13	3	13						
	7156	Passing Lane								8	2	16			
	7225	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	7257	Driving Lane								2	2	4			
	7300	Passing Lane								8	2	16			
	7328	Driving Lane	6	6	4.00	6		4	12				14	8	Basket
	7385	Driving Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 26.5061 to 26.7385

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	16

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	7385	Passing Lane								6	2	12			
	7407	Driving Lane											28	15	
	7464	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	7545	Passing Lane								4	2	8			
	7584	Passing Lane	13	7	10.11		13	3	13						
	7630	Driving Lane								2	2	4			
	7774	Driving Lane											42	22	
		Passing Lane								2	2	4			
	7804	Passing Lane	13	7	10.11		13	3	13						
	7823	Driving Lane								3	2	6			
	7863	Passing Lane								4	2	8			
	7905	Driving Lane								4	2	8			2 partial depths
		Passing Lane								2	2	4			
	8087	Driving Lane											82	42	
	8115	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	8157	Driving Lane								8	2	16			2 partial depths
		Passing Lane								5	2	10			
	8235	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
26	8290	Passing Lane								2	2	4			
		Passing Lane								2	2	4			
	8414	Driving Lane	14	7	10.89		14	3	14				45	24	
		Passing Lane	13	7	10.11		13	3	13						
	8467	Driving Lane	14	6	9.33		14	2	14				14	8	
		Passing Lane	13	6	8.67		13	2	13						
	8537	Driving Lane	14	14	21.78		28	5					22	12	
		Passing Lane	6	6	4.00			4							
	8564	Driving Lane	6	6	4.00			4							
		Passing Lane								5	2	10			
	8630	Driving Lane											84	43	
		Passing Lane	6	6	4.00	6		4	12						Basket
	8642	Driving Lane								2	2	4			
	8738	Driving Lane	14	14	21.78		28	5					14	8	
		Passing Lane	13	7	10.11		13	3	13						
	8836	Driving Lane								2	2	4			
		Passing Lane								13	2	26			
	8892	Passing Lane								13	2	26			
	8916	Driving Lane	14	14	21.78		28	5					28	15	
		Passing Lane								5	2	10			
	8977	Passing Lane								10	2	20			
	9051	Driving Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
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DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 26.7385 to 26.9051

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	17

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
26	9051	Passing Lane								2	2	4			
	9126	Passing Lane								7	2	14			
	9215	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	6	8.67		13	2	13						
	9281	Passing Lane								2	2	4			
		Passing Lane								2	2	4			
	9310	Driving Lane								2	2	4			
		Passing Lane	13	6	8.67		13	2	13						
	9368	Passing Lane								3	2	6			
	9389	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	9428	Driving Lane								2	2	4			
		Passing Lane								8	2	16			
	9487	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	9527	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	9535	Driving Lane								2	2	4			
		Passing Lane	13	6	8.67		13	2	13						
	9582	Driving Lane								2	2	4			
		Passing Lane								9	2	18			
	9607	Driving Lane	6	6	4.00		6	4	6				28	15	
		Passing Lane								2	2	4			
	9675	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	8	6	5.33		8	4	8						
	9761	Driving Lane								3	2	6			
		Passing Lane								3	2	6			
	9893	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	14	20.22		26	5							
	9930	Passing Lane								2	2	4			
	9982	Driving Lane								2	2	4			
		Passing Lane								3	2	6			
	Total				**1468.89**	**206**	**1570**	**423**	**730**			**626**	**992**	**526**	
27	1392	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	6	8.67		13	2	13						
	1420	Passing Lane								2	2	4			
	1518	Driving Lane								4	2	8			2 partial depths
		Passing Lane								13	2	26			
	1540	Passing Lane								2	2	4			
	1593	Driving Lane								2	2	4			
	1620	Driving Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 26.9051 to 27.1620

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	18

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY 570-0650	Basket (LF)	Bar Type			Dimensions		SF 570-1512	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)		#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)		Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	1620	Passing Lane								2	2	4			
	1693	Driving Lane								2	2	4	28	15	
	1736	Driving Lane											21	12	
	1750	Driving Lane								2	2	4			
		Passing Lane								3	2	6			
	1784	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	13	6	8.67		13	2	13						
	1893	Driving Lane											84	43	
	1945	Driving Lane								2	2	4			
		Passing Lane								8	2	16			
	2018	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	2190	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	2280	Driving Lane	6	6	4.00		6	2	6						
		Passing Lane	6	6	4.00		6	2	6						
	2690	Driving Lane								2	2	4			
	2850	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	3020	Driving Lane	14	14	21.78		28	5							
	3085	Driving Lane								4	2	8			
27	3260	Driving Lane	6	6	4.00		6	2	6	2	2	4			
	3410	Driving Lane								3	2	6			
		Passing Lane								3	2	6			
	3550	Passing Lane								13	2	26			
	3728	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	13	6	8.67		13	2	13						
	4963	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	4094	Passing Lane											56	29	
	4170	Driving Lane											174	88	
	4357	Passing Lane								2	2	4			
	4470	Passing Lane								2	2	4			
	4615	Driving Lane								4	3	12			
		Passing Lane								5	2	10			2 partial depths
	4780	Driving Lane	6	6	4.00		6	4	6				24	13	
	4910	Driving Lane								2	2	4			
	5110	Driving Lane								2	2	4	21	12	
	5200	Driving Lane								3	2	6			
		Passing Lane								4	2	8			2 partial depths
	5280	Passing Lane								2	2	4			
	5331	Driving Lane								4	2	8			
		Passing Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 27.1620 to 27.5331

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	19

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY 570-0650	Basket (LF)	Bar Type			Dimensions		SF 570-1512	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)		#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)		Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	5419	Driving Lane								2	2	4			
	5474	Driving Lane								2	2	4			
	5646	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
		Left Turn Lane	15	14	23.33		30	5							
	5690	Passing Lane								2	2	4			
	5874	Left Turn Lane								2	2	4			
	5910	Driving Lane								2	2	4			
	5955	Passing Lane	6	6	4.00		6	4	6						
		Left Turn Lane								3	2	6			
	6000	Driving Lane								2	2	4			
		Left Turn Lane								4	2	8			
	6130	Driving Lane								14	2	28			
		Passing Lane								4	2	8			
	6249	Driving Lane								4	2	8			
	6318	Passing Lane								2	2	4			
	6381	Passing Lane								2	2	4			
	6562	Driving Lane								6	2	12			
	6694	Passing Lane								2	2	4			
	6891														2 panels ATR Loops
	7030	Driving Lane								2	2	4			
27	7205	Driving Lane								3	2	6	28	15	
		Passing Lane								2	2	4			
	7310	Passing Lane								4	2	8			
	7408	Driving Lane								3	2	6			
		Passing Lane								3	2	6			
	7480	Passing Lane								3	2	6			
	7608	Driving Lane								2	2	4			
	7650	Passing Lane								2	2	4			
	7700	Passing Lane								2	2	4			
	7739	Passing Lane								2	2	4			
	7865	Driving Lane								2	2	4			
		Passing Lane								8	2	16			
	7950	Driving Lane								2	2	4	42	22	
		Passing Lane	13	6	8.67	13		2	12						Basket
	7995	Driving Lane								3	2	6			
		Passing Lane								3	2	6			
	8034	Passing Lane								3	2	6			
		Passing Lane								2	2	4			
	8082	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	6	8.67		13	2	13						
	8120	Passing Lane								3	2	6			
	8238	Driving Lane	14	14	21.78		28	5							

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 27.5331 to 27.8238

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	20

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"						Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	8238	Passing Lane	13	14	20.22		26	5							
	8368	Driving Lane								4	2	8			
		Passing Lane											42	22	
	8463	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane	13	6	8.67		13	2	13						
	8532	Driving Lane								2	2	4			
		Passing Lane								3	2	6			
	8620	Passing Lane								4	2	8			
	8644	Driving Lane	14	7	10.89		14	2	14						
		Passing Lane	13	7	10.11		13	2	13						
	8690	Passing Lane								3	2	6			
	8718	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	8779	Driving Lane								3	2	6			
		Passing Lane								8	2	16			
	8815	Driving Lane								2	2	4			
	8900	Driving Lane								4	2	8			2 partial depths
		Passing Lane								6	2	12			2 partial depths
27	9010	Driving Lane								2	2	4	42	22	
		Passing Lane								3	2	6			
	9080	Passing Lane								2	2	4			
	9115	Passing Lane								4	2	8			
	9216	Passing Lane								10	2	20			
	9311	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	9340	Passing Lane								2	2	4			
	9408	Driving Lane								2	2	4			
	9452	Driving Lane								2	2	4			
	9582	Driving Lane	14	28	43.56	14	28	10					28	15	Basket
		Passing Lane	13	6	8.67	13	13	2	26						Basket
	9687	Driving Lane								2	2	4	28	15	
		Passing Lane								2	2	4			
	9788	Driving Lane								4	2	8			
		Passing Lane	6	6	4.00	6		4	12	2	2	4			Basket
	9876	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	9905	Driving Lane								2	2	4			
	Total				**471.89**	**46**	**592**	**130**	**271**			**596**	**618**	**322**	
	726	Passing Lane								8	2	16			
28	786	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 27.8238 to 28.0786

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	21

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	862	Driving Lane	14	14	21.78		28	5							
		Passing Lane								2	2	4			
	892	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	937	Passing Lane								2	2	4			
	984	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	1084	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	1208	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	1276	Driving Lane								2	2	4			
		Passing Lane								3	2	6			
	1342	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	8	11.56		13	3	13						
	1425	Driving Lane	6	6	4.00		6	4	6						
	1474	Driving Lane								2	2	4			
		Passing Lane								3	2	6			
	1526	Passing Lane								2	2	4			
	1580	Driving Lane								2	5	10			
		Passing Lane								2	2	4			
28	1730	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	1849	Driving Lane								2	2	4			
	1890	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						
	2090	Driving Lane	8	6	5.33		8	4	8	2	2	4			
		Passing Lane						4		2	2	4			
	2177	Driving Lane	6	6	4.00		6		6						
		Passing Lane								7	2	14			
	2274	Passing Lane								2	2	4			
	2387	Driving Lane								2	2	4			
		Passing Lane								5	2	10			
	2463	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	2492	Driving Lane	14	14	21.78		28	5							
	2531	Passing Lane								6	2	12			
	2609	Driving Lane	14	14	21.78		28	5					14	8	
		Passing Lane											56	29	
	2687	Driving Lane	14	8	12.44		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	2779	Driving Lane	6	6	4.00	6		4	12						Basket
		Passing Lane	6	6	4.00		6	4	6						

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 28.0786 to 28.2779

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	22

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY 570-0650	Basket (LF)	Bar Type			Dimensions		SF 570-1512	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)		#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)		Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	2849	Driving Lane								2	2	4			
		Passing Lane								4	2	8			
	2975	Driving Lane								2	2	4			
		Passing Lane								5	2	10			
	2996	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	3040	Driving Lane											42	22	
	3139	Passing Lane								7	2	14			
	3171	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	3223	Passing Lane								2	2	4			
		Passing Lane								2	2	4			
	3274	Passing Lane								13	2	26			
	3315	Driving Lane								2	2	4			
	3328	Driving Lane											14	8	
		Passing Lane								4	2	8			
	3350	Driving Lane	14	14	21.78		28	5							
	3403	Driving Lane								2	2	4			
		Passing Lane								4	2	8			
	3453	Driving Lane								4	2	8			2 partial depths
		Passing Lane								2	2	4			
28	3475	Passing Lane								2	2	4			
	3529	Driving Lane								4	2	8			2 partial depths
		Passing Lane								6	2	12			
	3655	Passing Lane								4	2	8			
	3692	Driving Lane								2	2	4			
		Passing Lane								6	2	12			
	3725	Driving Lane								2	2	4			
		Passing Lane								6	2	12			
	3750	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13						
	3802	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	3845	Driving Lane											28	15	
		Passing Lane								4	2	8			2 partial depths
	3885	Passing Lane								2	2	4			
	3912	Driving Lane								2	2	4			
		Passing Lane								13	2	26			
	3972	Passing Lane								3	2	6			
	4000	Passing Lane								4	2	8			
	4037	Passing Lane								4	2	8			
	4081	Passing Lane								2	2	4			
	4210	Driving Lane	14	6	9.33	14		2	28						Basket

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 28.2779 to 28.4210

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	23

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	4210	Passing Lane	13	6	8.67	13		2	26						Basket
	4255	Driving Lane								2	2	4			
		Passing Lane								4	2	8			2 partial depths
	4329	Passing Lane								4	2	8			
	4452	Passing Lane								13	2	26			
	4478	Driving Lane											28	15	
	4592	Passing Lane	6	6	4.00		6	4	6						
	4639	Driving Lane								2	2	4			
	4672	Passing Lane								2	2	4			
		Passing Lane								2	2	4			
	4778	Passing Lane	13	6	8.67		13	2	13						
	4827	Driving Lane											56	29	
	5166	Passing Lane								2	2	4			
	5381	Passing Lane								4	2	8			
	5445	Driving Lane								2	2	4			
		Passing Lane								6	2	12			2 partial depths
	5651	Passing Lane								3	2	6			
	5732	Driving Lane								3	2	6			
		Passing Lane								4	2	8			2 partial depths
	5770	Driving Lane								4	2	8			
		Passing Lane								4	2	8			2 partial depths
28	6057	Driving Lane	14	6	9.33		14	2	14						
	6133	Passing Lane								2	2	4			
	6248	Driving Lane	6	6	4.00		6	4	6	2	2	4			
		Passing Lane								2	2	4			
	6326	Driving Lane	6	6	4.00		6	4	6				22	12	
		Passing Lane								13	2	26			
	6415	Driving Lane								3	2	6			
	6466	Passing Lane								3	2	6			
	6602	Driving Lane											42	22	
		Passing Lane								2	2	4			
	6635	Passing Lane								4	2	8			
	6696	Passing Lane								2	2	4			
	6787	Passing Lane								3	2	6			
		Passing Lane								4	2	8			
	6870	Driving Lane								4	2	8			
		Passing Lane								2	2	4			
	6942	Passing Lane								3	2	6			
	6981	Passing Lane								6	2	12			
	7002	Passing Lane								2	2	4			
	7036	Passing Lane								2	2	4			
	7087	Passing Lane								3	2	6			
	7142	Passing Lane								13	2	26			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 28.4210 to 28.7142

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	24

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	7242	Passing Lane	13	7	10.11	13		3	26						Basket
	7302	Driving Lane											48	25	
	7325	Driving Lane	14	14	21.78		28	5							
	7431	Driving Lane											28	15	
		Passing Lane	13	7	10.11		13	3	13						
	7448	Passing Lane								5	2	10			
	7514	Passing Lane	13	7	10.11		13	3	13						
	7550	Driving Lane								3	3	9	42	22	
	7588	Passing Lane								8	2	16			
	7654	Passing Lane								3	2	6			
	7690	Driving Lane								2	2	4			
	7702	Driving Lane	14	8	12.44		14	3	14						
		Passing Lane	13	8	11.56		13	3	13						
	7769	Passing Lane								13	2	26			
	7822	Driving Lane								2	2	4			
		Passing Lane								9	2	18			
	7913	Driving Lane	14	14	21.78	14		5	28						Basket
		Passing Lane	13	7	10.11		13	3	13						
	7980	Driving Lane			0.00								14	8	
	8007	Driving Lane	7	7	5.44		7	6	7						
		Passing Lane	8	6	5.33		8	4	8						
28	8036	Driving Lane											20	11	
	8075	Driving Lane								4	2	8			
		Passing Lane								8	2	16			
	8098	Driving Lane								2	2	4			
	8157	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67	13		2	26						Basket
	8400	Driving Lane											50	26	
	8452	Driving Lane	14	20	31.11	14	14	7	14						
	8588	Driving Lane	6	6	4.00	6		4	12						Basket
	8623	Driving Lane								4	2	8			
	8667	Driving Lane	7	6	4.67		7	4	7						
		Passing Lane								5	2	10			2 partial depths
	8700	Driving Lane								4	2	8			
	8751	Driving Lane								2	2	4			
	8774	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	8832	Driving Lane								4	2	8			
		Passing Lane								2	2	4			
	8881	Driving Lane								4	2	8			
		Passing Lane								6	2	12			
	8946	Driving Lane								3	2	6			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 28.7142 to 28.8946

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	25

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
28	9023	Driving Lane											12	7	
	9223	Driving Lane	14	6	9.33		14	2	14						
	9355	Driving Lane	14	14	21.78		28	5					14	8	
		Passing Lane								13	2	26			
	9417	Driving Lane											28	15	
	9462	Driving Lane								2	2	4			
		Passing Lane								7	2	14			
	9501	Driving Lane								6	2	12			
		Passing Lane								5	2	10			
	9642	Passing Lane								3	2	6			
	9710	Passing Lane								2	2	4			
	9820	Passing Lane								2	2	4			
	9846	Driving Lane								2	2	4			
		Passing Lane								13	2	26			
	9902	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	Total				**625.44**	**93**	**707**	**189**	**507**			**995**	**558**	**297**	
	0	Driving Lane	14	7	10.89		14	3	14						
	204	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	240	Driving Lane								14	2	28			
		Passing Lane								13	2	26			
	309	Driving Lane								2	2	4			
	416	Driving Lane											14	8	
	430	Driving Lane								2	2	4			
		Passing Lane								8	8	64			
	570	Driving Lane								6	2	12			
		Passing Lane	13	6	8.67	13		2	26						Basket
29	712	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13						
	805	Driving Lane	14	14	21.78		28	5							
	920	Passing Lane	13	7	10.11		13	3	13						
	991	Passing Lane								13	2	26			
	1014	Driving Lane											84	43	
	1053	Passing Lane								2	2	4			
	1108	Driving Lane	6	6	4.00	6		4	12						Basket
	1278	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	1462	Driving Lane	14	6	9.33		14	2	14						
		Passing Lane	13	6	8.67		13	2	13						

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 28.8946 to 29.1462

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	26

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	1578	Passing Lane								2	2	4			
	1708	Driving Lane								2	2	4			
	1789	Passing Lane								2	2	4			
	1804	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	1846	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	1904	Driving Lane								2	2	4			
	1946	Driving Lane								2	2	4			
	2020	Driving Lane								2	2	4			
	2155	Driving Lane	6	6	4.00		6	4	6						
		Driving Lane	14	28	43.56	14	28	10							
		Passing Lane	13	21	30.33	14	13	8	13						
															Bridge exception 29.187 to 29.329
	4100	Driving Lane								2	2	4			
	4398	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								2	2	4			
	4452	Driving Lane	14	14	21.78		28	5							
	4477	Driving Lane								2	2	4			
29		Passing Lane								4	2	8			
	4496	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	4526	Passing Lane								6	2	12			
	4568	Driving Lane	14	14	21.78		28	5					28	15	
	4616	Driving Lane								2	2	4	42	22	
		Passing Lane								2	2	4			
	4642	Driving Lane								2	2	4			
	4662	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	4692	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	4711	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	4730	Driving Lane								6	2	12	28	15	
		Passing Lane								6	2	12			
	4754	Driving Lane								2	2	4			
		Passing Lane								6	2	12			
	4816	Passing Lane								2	2	4			
	4837	Passing Lane								7	2	14			
	4881	Driving Lane	14	70	108.89	56	28	25							
	5106	Driving Lane	14	98	152.44	84	28	35							

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 29.1462 to 29.5106

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	27

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	5127	Passing Lane	13	70	101.11	52	26	25							
	5164	Passing Lane								6	2	12			
	5209	Passing Lane								3	2	6			
	5268	Driving Lane	14	14	21.78		28	5							
		Passing Lane	6	6			6	4	6						
	5335	Driving Lane											42	22	
	5405	Driving Lane								2	2	4			
	5480	Driving Lane											28	15	
		Passing Lane	13	14	20.22		26	5							
	5505	Driving Lane								4	2	8			
	5557	Driving Lane	14	14	21.78		28	5							
		Passing Lane								13	2	26			
	5656	Passing Lane								2	2	4			
	5730	Driving Lane											28	15	
	5751	Driving Lane	14	28	43.56	14	28	10							
		Passing Lane	13	14	20.22		26	5							
	5796	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	5835	Driving Lane											28	15	
	5785	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
29	6159	Driving Lane	14	14	21.78		28	5							
	6171	Driving Lane											14	8	
	6255	Passing Lane								2	2	4			
	6258	Driving Lane	14	14	21.78		28	5					42	22	
	6290	Driving Lane											14	8	
		Passing Lane											84	43	
	6356	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5					14	8	
	6445	Passing Lane											14	8	
	6540	Driving Lane	14	42	65.33	28	28	5							
	6715	Driving Lane											98	50	
	6775	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	6798	Driving Lane	6	6	4.00		6	4	6						
	6923	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13						
	6940	Driving Lane											12	7	
	7005	Driving Lane								2	2	4			
	7103	Driving Lane	6	6	4.00		6	4	6	3	2	6			
	7258	Driving Lane								2	2	4			
	7763	Driving Lane											84	43	
	7795	Passing Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 29.5106 to 29.7795

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	28

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
29	7813	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	7812	Passing Lane								2	2	4			
	7890	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	7906	Driving Lane								2	2	4			
	7936	Driving Lane								2	2	4			
	8039	Passing Lane								2	2	4			
	8072	Driving Lane											56	29	
	8115	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								4	2	8			
	8157	Driving Lane											28	15	
	8167	Passing Lane								2	2	4			
	8186	Driving Lane	14	28	43.56	14	28	10							
	8251	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13				49	26	
	8430	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	8523	Driving Lane	7	6	4.67		7	4	7				56	29	
	8561	Passing Lane								2	2	4			
	8658	Driving Lane								2	2	4			
		Passing Lane								14	2	28			
	8705	Driving Lane											14	8	
	8723	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.89		13	3	13						
	8894	Passing Lane								2	2	4			
	8955	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13						
	9177	Driving Lane											98	50	
	9278	Driving Lane	14	42	65.33	28	28	15							
	9335	Driving Lane								3	2	6			
	9443	Driving Lane	6	6	4.00		6	4	6				26	14	
		Passing Lane								13	2	26			
	9726	Driving Lane	6	14	9.33		12	10					28	15	
	9864	Passing Lane								2	2	4			
	9934	Driving Lane											49	26	
	Total				**1254.00**	**323**	**1005**	**328**	**341**			**552**	**1102**	**578**	
30	1647	Passing Lane								2	2	4			
	1680	Driving Lane	8	6	5.33		8	4	8						
		Passing Lane								2	2	4			
	1883	Driving Lane											28	15	

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 29.7795 to 30.1883

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	29

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	1962	Passing Lane								2	2	4			
	2025	Driving Lane								4	2	8			
	2055	Driving Lane											14	8	
	2083	Driving Lane								2	2	4			
		Passing Lane								2	2	4			
	2192	Driving Lane								4	3	12	28	15	
	2225	Driving Lane											28	15	
	2261	Passing Lane								2	2	4			
	2404	Driving Lane								2	2	4			
	2483	Driving Lane	6	6	4.00		6	4	6						
	2721	Driving Lane								2	2	4			
	2743	Passing Lane								2	2	4			
	3159	Passing Lane											56	29	
	3198	Driving Lane	14	14	21.78		28	5							
		Passing Lane								2	2	4			
	3246	Passing Lane											42	22	
	3280	Driving Lane								2	2	4			
	3350	Passing Lane								6	2	12			
	3380	Driving Lane								2	2	4			
	3415	Passing Lane	13	14	20.22		26	5							
	3476	Driving Lane	14	14	21.78		28	5							
30		Passing Lane	13	7	10.11		13	3	13						
	3507	Driving Lane											28	15	
	3552	Driving Lane	14	14	21.78		28	5							
	3729	Passing Lane											42	22	
	3766	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	3805	Driving Lane	7	7	5.44		7	3	7				28	15	
	3885	Driving Lane											35	19	
	3940	Passing Lane											84	43	
	3970	Driving Lane	6	6	4.00		6	4	6						
	4000	Passing Lane											36	19	
	4054	Driving Lane	6	6	4.00		6	4	6				28	15	
	4099	Driving Lane											14	8	
	4264	Driving Lane											35	19	
	4288	Passing Lane								2	2	4			
	4315	Driving Lane											14	8	
	4331	Driving Lane													
	4370	Driving Lane								3	2	6			
	4396	Driving Lane								2	2	4			
	4430	Passing Lane								2	2	4			
	4474	Passing Lane								2	2	4			
	4520	Passing Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 30.1883 to 30.4520

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	30

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY 570-0650	Basket (LF)	Bar Type			Dimensions		SF 570-1512	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)		#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)		Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	4550	Driving Lane								2	2	4			
	4576	Driving Lane								7	2	14			
		Passing Lane								2	2	4			
	4616	Driving Lane								2	2	4			
	4621	Passing Lane								6	2	12			
	4690	Passing Lane								2	2	4			
	4760	Passing Lane								3	2	6	150	76	
	4779	Driving Lane								2	2	4			
	4885	Passing Lane								2	2	4			
	4960	Driving Lane								7	2	14			
		Passing Lane								13	2	26			
	5020	Passing Lane	13	7	10.11		13	3	13						
	5052	Driving Lane								2	2	4			
	5114	Driving Lane	14	7	10.89		14	3	14				25	14	
		Passing Lane	13	7	10.11		13	3	13						
	5175	Driving Lane											21	12	
	5432	Driving Lane								2	2	4			
	5543	Driving Lane	14	14	21.78		28	5							
	5574	Driving Lane											14	8	
	5669	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13						
30	5942	Driving Lane	7	7	5.44		7	6	7						
	6116	Driving Lane								14	2	28	40	21	
	6251	Driving Lane	6	56	37.33	18	12	40					28	15	
	6358	Driving Lane											56	29	
	6463	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane								2	2	4			
	6560	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	6714	Driving Lane								2	2	4			
	6775	Driving Lane								6	2	12			
	6823	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	14	20.22		26	5							
	6906	Driving Lane								3	2	6			
	7101	Passing Lane								2	2	4			
	7130	Driving Lane											28	15	
	7330	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	7580	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11			3							
	7851	Passing Lane								2	2	4			
	8159	Driving Lane								2	2	4	10	6	
	8177	Passing Lane								2	2	4			

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 30.4520 to 30.8177

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	31

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
30	8209	Driving Lane								3	2	6			
	8263	Driving Lane								3	2	6			
	8342	Passing Lane								3	2	6			
	8412	Driving Lane								4	2	8			
	8486	Driving Lane								2	2	4			
	8512	Driving Lane								3	2	6			
	8590	Driving Lane								2	2	4			
		Passing Lane								4	2	8			
	8605	Passing Lane								3	2	6			
	8736	Passing Lane								6	2	12			
	8810	Driving Lane								3	2	6			
	8856	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane								4	2	8			
	8919	Driving Lane								3	2	6	38	20	
	9008	Passing Lane								2	2	4			
	9082	Passing Lane								2	2	4			
	9157	Driving Lane								2	2	4			
		Passing Lane								13	2	26			
	9225	Driving Lane								2	2	4			
		Driving Lane								2	2	4			
	9250	Driving Lane								6	2	12			
	9418	Passing Lane								2	2	4			
	9843	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	13						
	9954	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	Total				**467.67**	**18**	**556**	**168**	**242**			**428**	**950**	**501**	
31	881	Driving Lane								2	2	4			
	980	Driving Lane	6	6	4.00		6	4	6						
	1035	Driving Lane								2	2	4			
	1085	Driving Lane	6	6	4.00		6	4	6						
	1210	Driving Lane	6	6	4.00		6	4	6						
	1460	Driving Lane								5	2	10	28	15	
	1587	Driving Lane								5	2	10	28	15	
	1663	Driving Lane								4	2	8			
	1802	Passing Lane								2	2	4			
	2161	Driving Lane								4	2	8			
	2376	Driving Lane	14	7	10.89		14	3	14						
	2649	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	2784	Driving Lane	7	7	5.44		7	6	7						

*0.0001 Miles

REGISTERED PROFESSIONAL ENGINEER
Robert A. DiCinno
PE-41105
DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 30.8177 to 31.2784

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	11	32

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions		SY	Basket (LF)	Bar Type			Dimensions		SF	Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
	3086	Driving Lane	14	14	21.78		28	5							
		Passing Lane	13	7	10.11		13	3	7						
	3296	Driving Lane								2	2	4			
		Passing Lane								4	2	8			
	3420	Driving Lane											28	15	
	3432	Driving Lane								3	2	6			
	3455	Driving Lane								2	2	4			
	3585	Passing Lane								3	2	6			
	3834	Driving Lane											49	26	
	3900	Driving Lane								2	2	4			
	4054	Driving Lane								2	2	4	25	14	
	4132	Driving Lane											21	12	
	4206	Driving Lane								3	3	9	20	11	
		Passing Lane								2	2	4			
	4957	Driving Lane								2	2	4	28	15	
		Passing Lane								4	2	8			
	5028	Driving Lane								2	2	4			
	5073	Driving Lane								3	2	6			
		Passing Lane								3	2	6	28	15	
	5102	Passing Lane								2	2	4			
	5519	Driving Lane	7	7	5.44		7	6	7				49	26	
31	5664	Passing Lane								2	2	4			
	5700	Driving Lane	7	7	5.44		7	6	7				49	26	
	5780	Passing Lane								2	2	4			
	5850	Driving Lane								2	2	4			
	5991	Driving Lane	14	14	21.78		28	5					28	15	
		Passing Lane								2	2	4			
	6096	Driving Lane											24	13	
		Passing Lane	6	6	4.00		6	4	6						
	6180	Driving Lane	6	6	4.00		6	4	6						
	6264	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	6317	Driving Lane								2	2	4			
	6348	Driving Lane								2	2	4			
		Passing Lane	6	6	4.00		6	4	6						
	6372	Driving Lane	14	7	10.89		14	3	14						
		Passing Lane	13	7	10.11		13	3	13						
	6415	Driving Lane	6	6	4.00		6	4	6						
	6552	Driving Lane								2	2	4			
		Passing Lane								13	2	26			
	6590	Driving Lane											42	22	
	6606	Driving Lane								3	2	6			
	6731	Driving Lane								3	2	6			

*0.0001 Miles

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DATE 03/23/26
NORTH DAKOTA

WB US 2
CPR Locations
RP 31.2784 to 31.6731

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	11	33

DATA TABLES

Westbound US-2 Concrete Pavement Repair Locations

Location			Full Depth 8.5"							Partial Depth			Stitch		Notes
			Dimensions			Basket (LF)	Bar Type			Dimensions			Dimensions	# of Bars	
RP	From RP*	Lane	Width (ft)	Length (ft)	SY 570-0650	#10 @ 18" 570-0240	Smooth #10 @ 18"	Grade 60 #5 @ 36"	Deformed #10 @ 18"	Width (ft)	Length (ft)	SF 570-1512	Length (ft) Not a Bid Item	Dowel #6 def @ 10.25" 570-1600	
31	6804	Driving Lane	6	6	4.00		6	4	6						
		Passing Lane								2	2	4			
	6896	Driving Lane											21	12	
	7073	Driving Lane											28	15	
	7210	Driving Lane											31	17	
	7332	Driving Lane								3	2	6	14	8	
	7418	Driving Lane								3	2	6			
		Passing Lane								3	2	6			
	7733	Passing Lane								2	2	4			
	Total				**175.89**	**0**	**233**	**84**	**171**			**221**	**541**	**289**	

*0.0001 Miles

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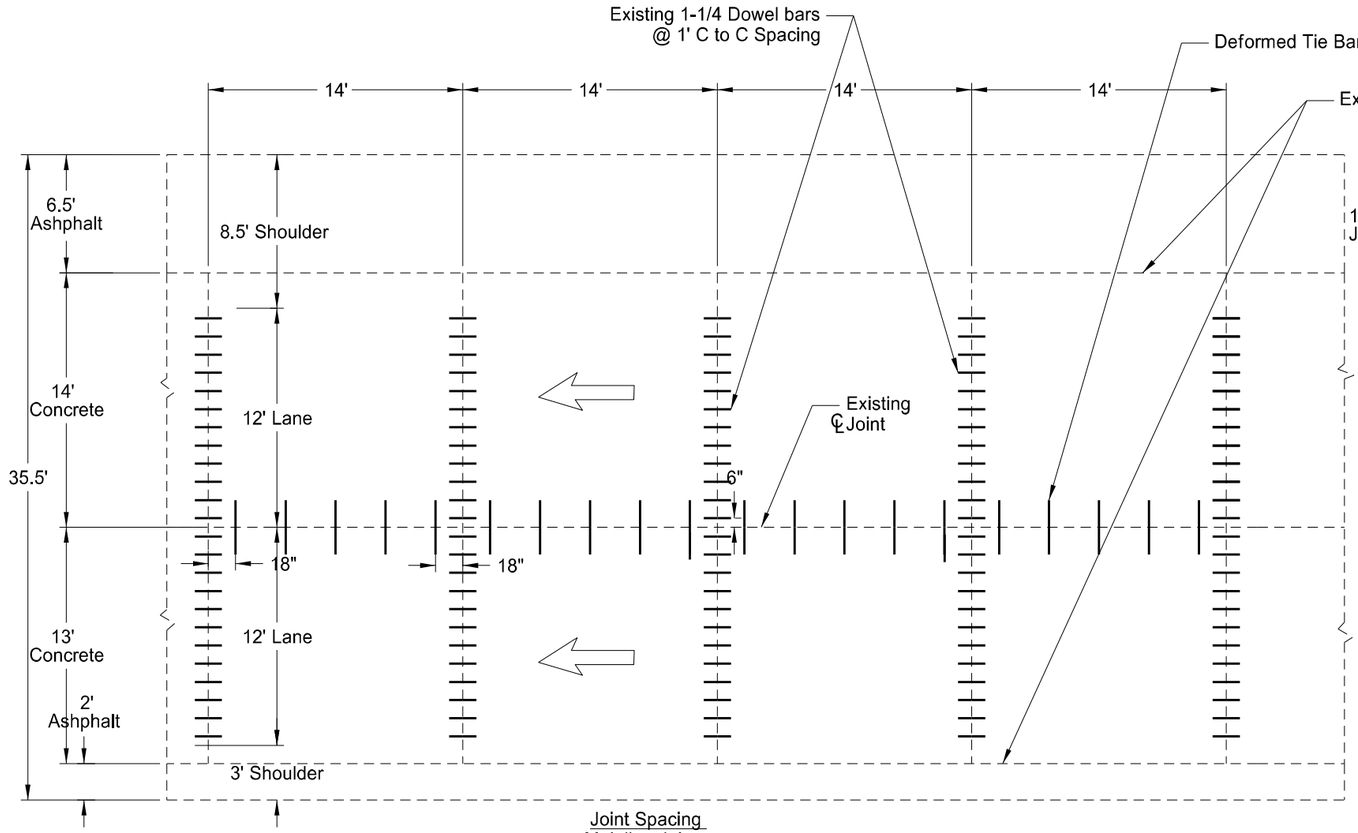
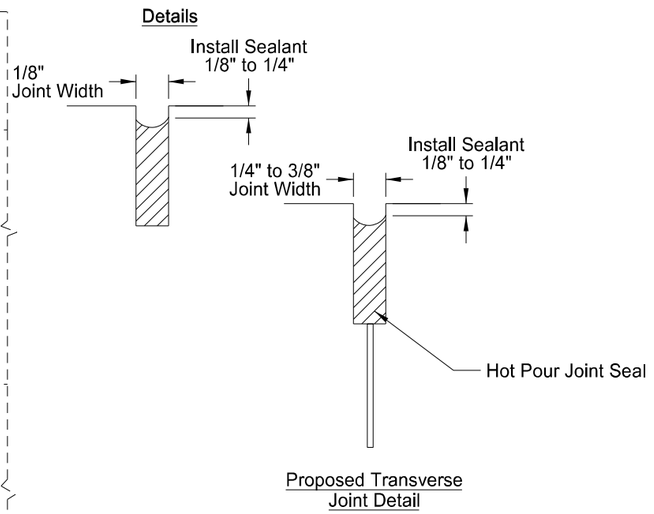
WB US 2
CPR Locations
RP 31.6731 to 31.7733

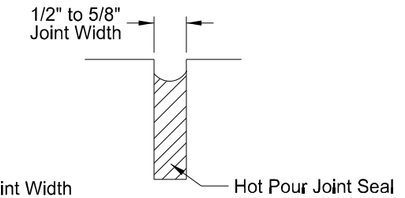
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	20	1



Joint Spacing
Mainline Joints
Uniform Joint Spacing 14'

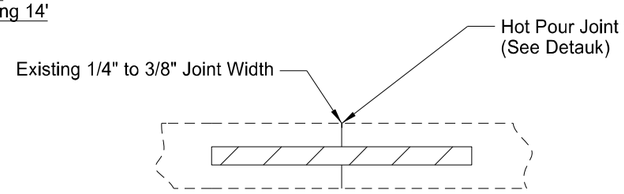


Proposed Transverse
Joint Detail

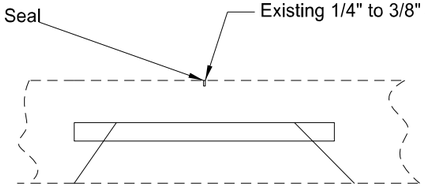


Proposed Longitudinal
Joint Detail

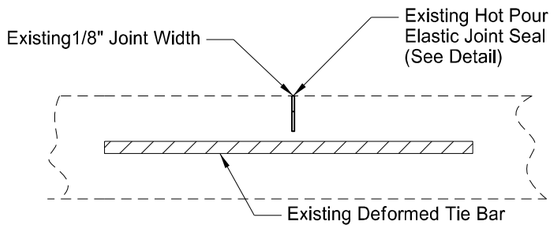
Longitudinal Joint Tie Bar Size and Length		Spacing
℄ Mainline	#5 @ 36"	2'9" C-C
Turn Lane	#5 @ 36"	2'9" C-C



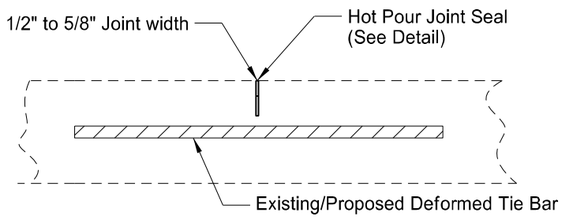
Existing / Proposed Deformed Bar (1'-0" C to C)



Existing / Proposed Deweled Transverse Joint



Existing Longitudinal
Joint Seal



Proposed Longitudinal Joint Seal
(All sawed and Tied Joints)

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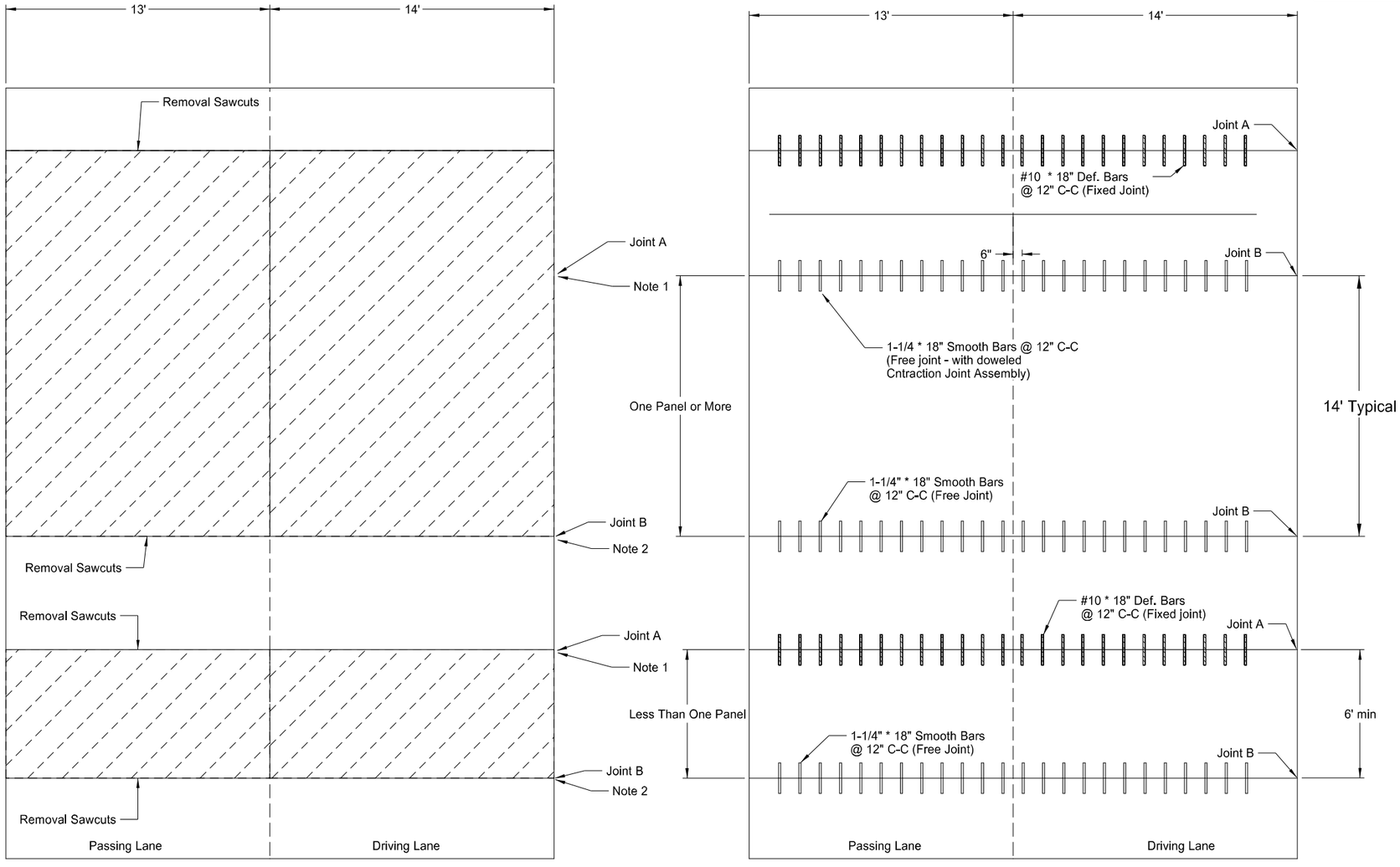
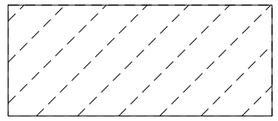
NORTH DAKOTA

Existing / Proposed
PCC pavement Joint Details
Uniform Joint Spacing
US 2 WB
RP 22.346 to 31.774

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	20	2




PCC Removal

Notes:

1. Provide a Fixed (joint A) when the new joint is the shortest distance to the next transverse joint or working random crack. Saw cut parallel to the joint. Place deformed bars parallel to the centerline of the face of the saw cut.
2. Provide a Free Joint (Joint B) when the new joint is the greatest distance to the next transverse joint of working random crack.
3. When the distance to the next transverse joint or working random crack is equal for both new joints, place the free joint (Joint B) on the approach side of the repair.
4. Install a Doweled contraction joint assembly at the transverse contraction joint if the distance is greater than one panel in length.
5. Place joints to match the existing pavement in repair areas which are not the entire width of the roadway.
6. The joints at the beginning and end of a full depth repair section can be either a Free joint or a Fixed joint depending on the existing joint.

Removal of Concrete & Dowel Bar
Placement - Full Depth Repair
US 2 WB
RP 22.346 to 31.774

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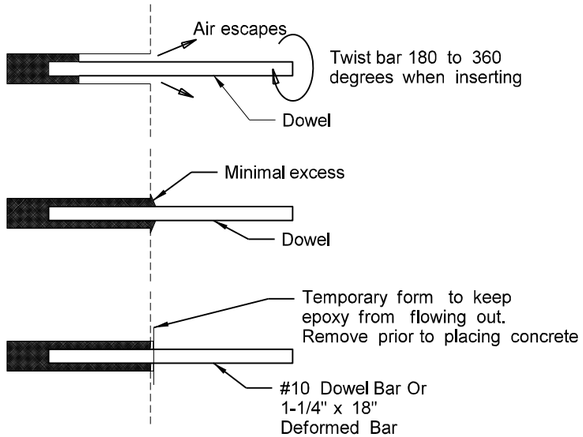
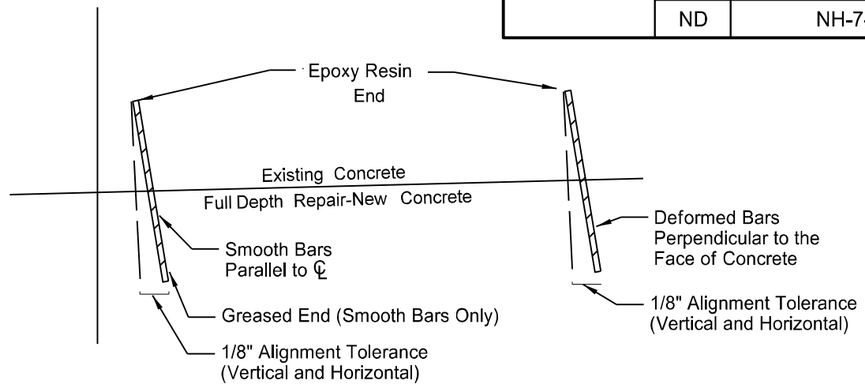
PE-41105
DATE 03/23/26
NORTH DAKOTA

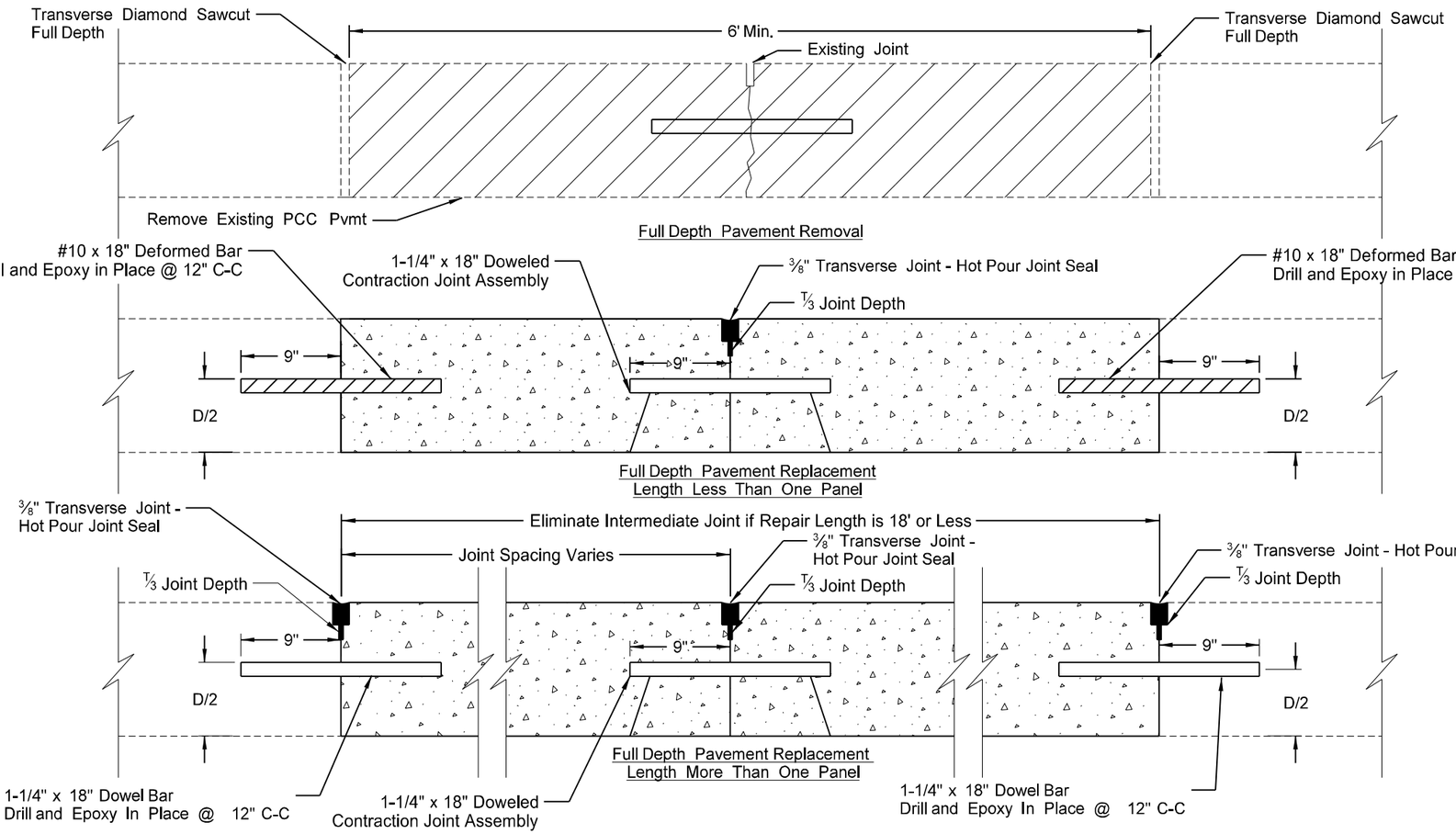
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	20	3



Dowel & Epoxy Installation
(Smooth or Deformed Bars)



Dowel Alignment Tolerance



Notes:

1. Variables:
   D = Depth of Pavement
2. Removal and replacement also applies to full depth repairs at cracks.
3. Place smooth dowel bars in repair joint which is farthest away from the next transverse joint or working random crack. If distance is equal for both repair joints, place smooth dowels on approach side of patch.
4. Space Dowel/Deformed Bars, or Baskets, @ 12" C-C and 6" from longitudinal joints; total of 12 bars per 12' lane.
5. Grease the exposed end of 1-1/4" x 18" smooth bar.

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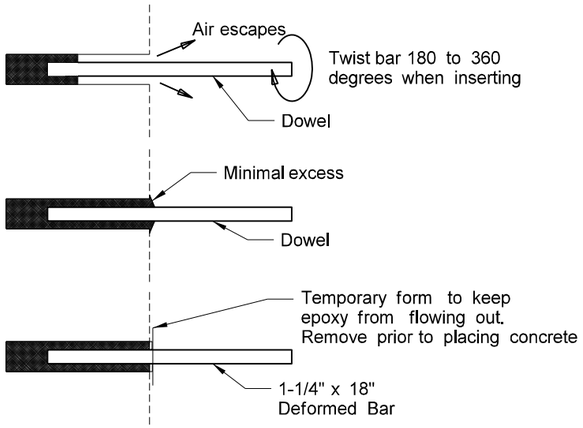
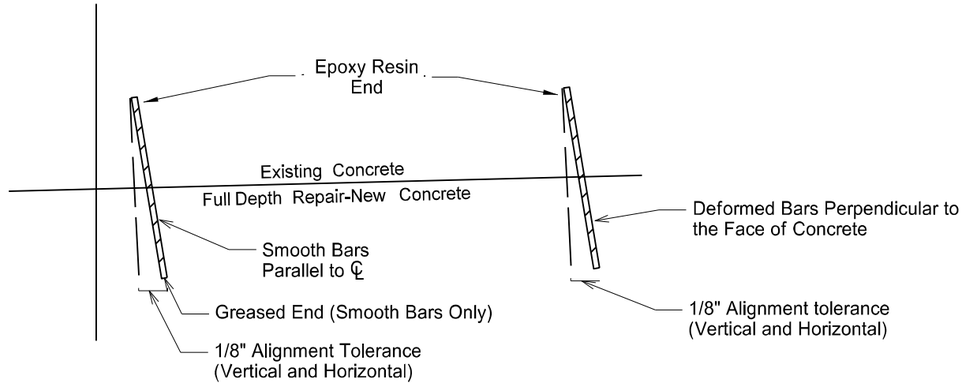
Concrete Pavement Repair - Full Depth
Non-Reinforced PCC Pavement - Doweled
US 2 WB
RP 22.346 to 31.774

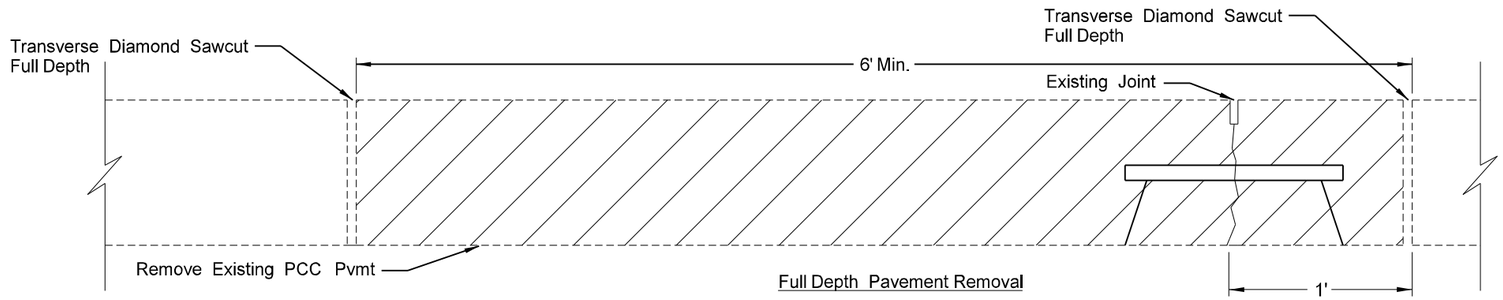
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	20	4



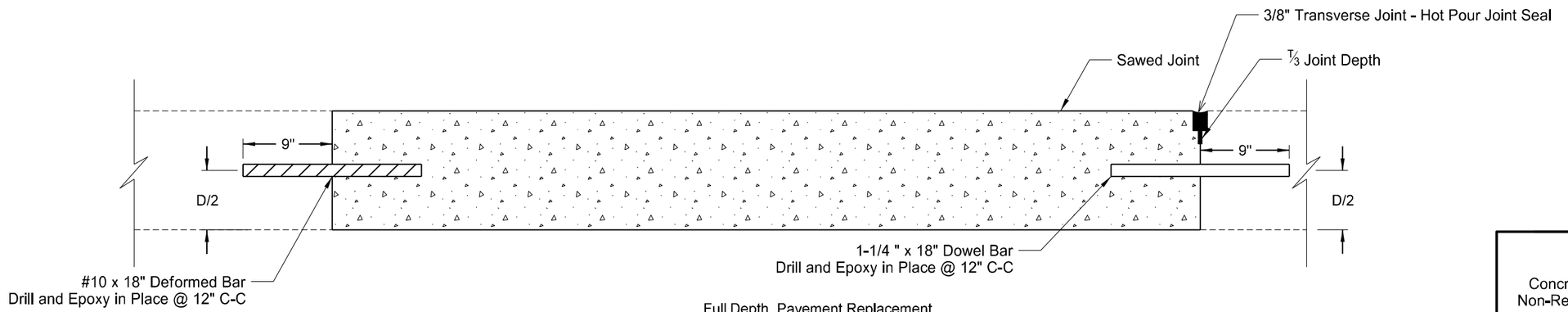
Dowel & Epoxy Installation
(Smooth or Deformed Bars)



Dowel Alignment Tolerance



Full Depth Pavement Removal



Full Depth Pavement Replacement
Length Less Than One Panel

Notes:

1. Variables:
   D = Depth of Pavement
2. Removal and replacement also applies to full depth repairs at cracks.
3. Place smooth dowel bars in repair joint with is farthest away from the next transverse joint or working random crack. If distance is equal for both repair joints, place smooth dowels on approach side of patch.
4. Space Dowel/Deformed Bars, or Baskets @ 12" C-C and 6" from longitudinal joints; total of 12 bars per 12' lane.
5. Grease the exposed end of 1-1/4" x 18" smooth bar.

REGISTERED PROFESSIONAL ENGINEER
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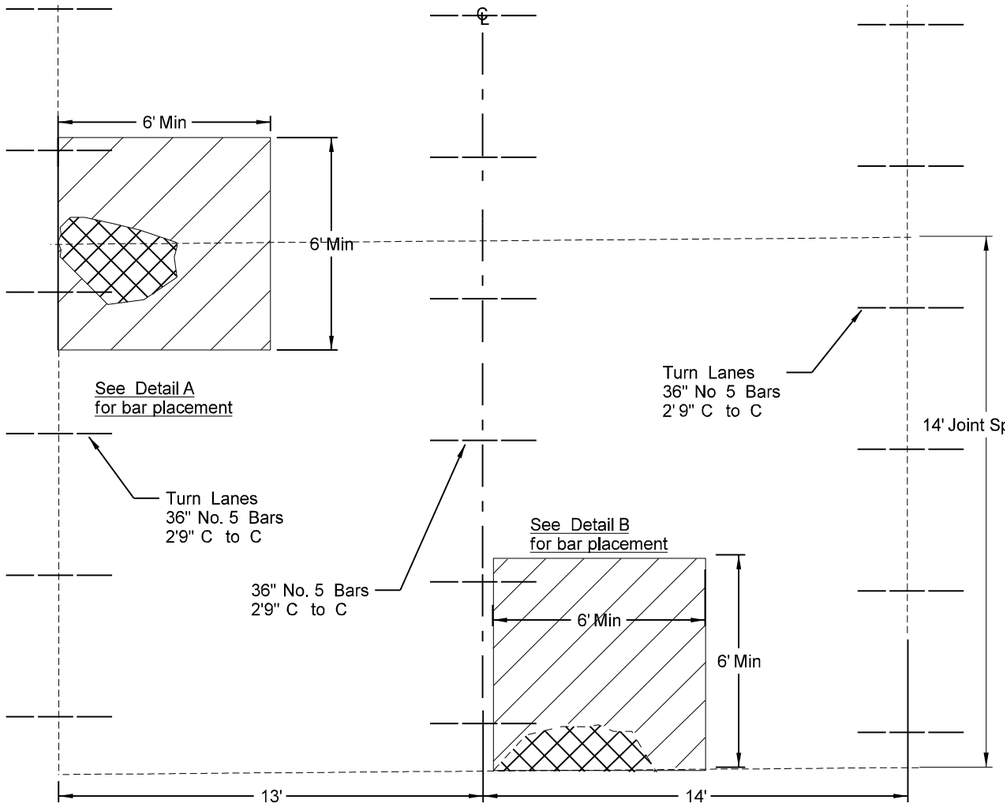
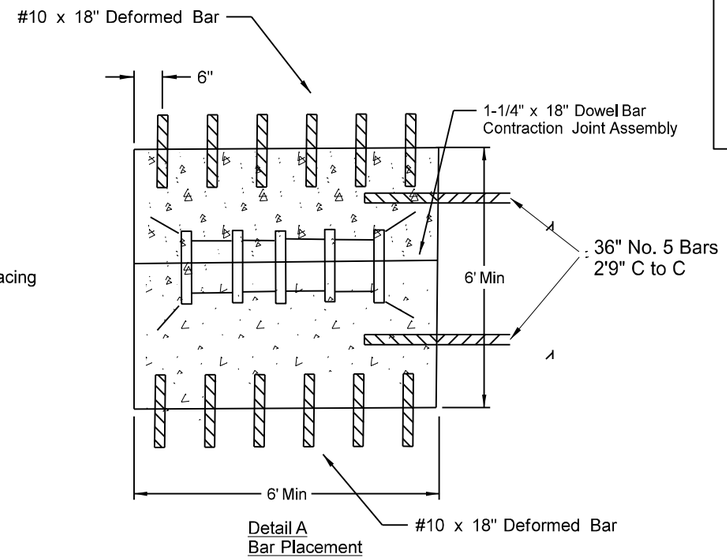
DATE 03/23/26
NORTH DAKOTA

Concrete Pavement Repair - Full Depth
Non-Reinforced PCC Pavement - Deweled
US 2 WB
RP 22.346 to 31.774

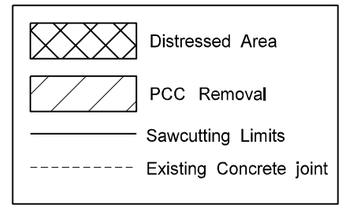
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	20	5



Full Depth Repairs
Removal Areas



Detail A
Bar Placement

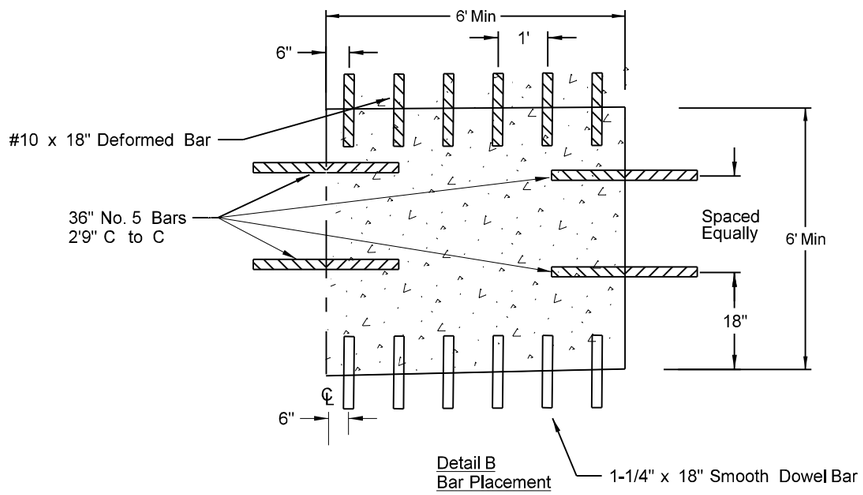


Notes:

1. Variables:
   D = Depth of Pavement

2. Space Dowel/Deformed Bars or Baskets @ 12" C-C and 6" from longitudinal joints.

3. Space Deformed Bars along construction joint 18" from transverse joint and 2'9" C-C.



Detail B
Bar Placement

1-1/4" x 18" Smooth Dowel Bar

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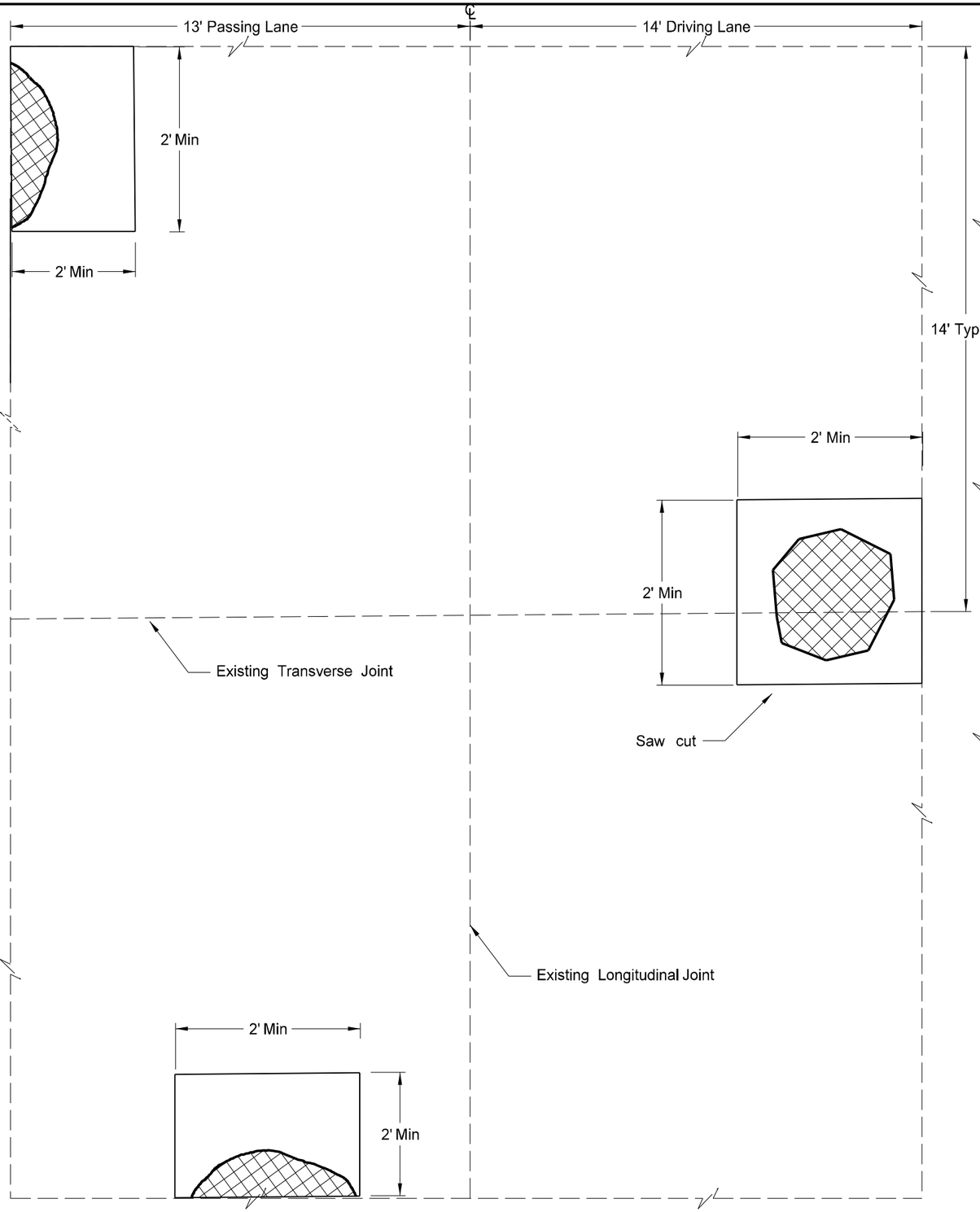
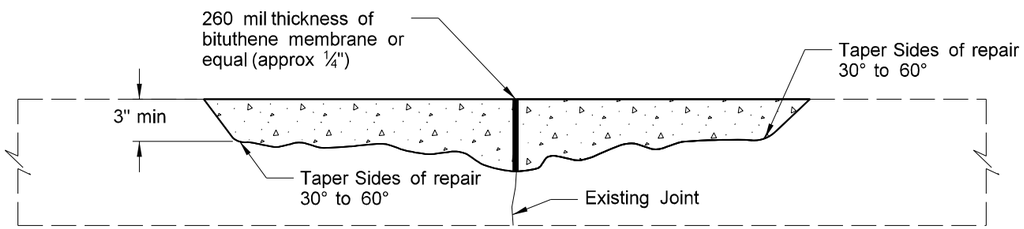
Full Depth Repair Details
US 2 WB
RP 22.346 to 31.774

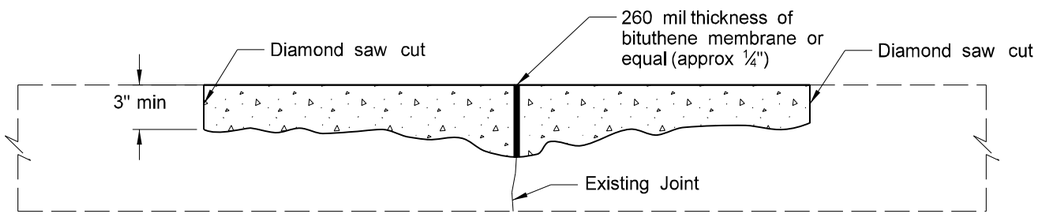
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	20	6





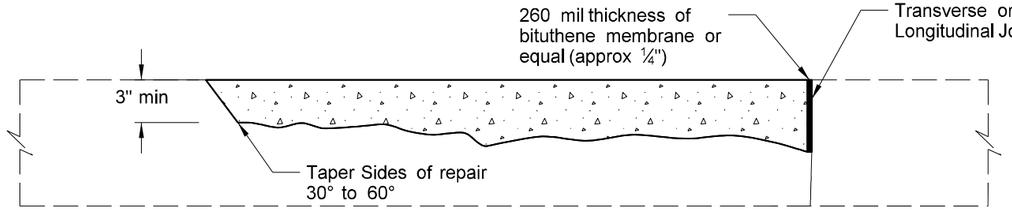
Cross Section - Repair Area

Milling



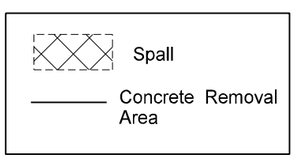
Cross Section - Repair Area

Chipping



Cross Section - Repair Area

Milling



Plan View (not to scale)

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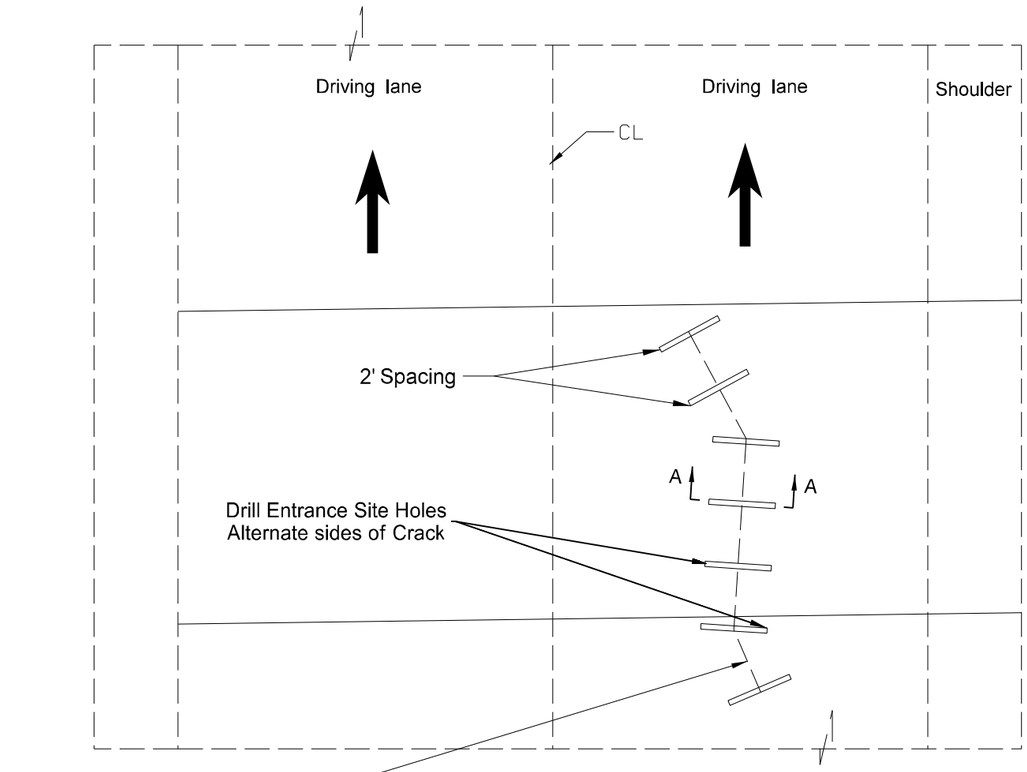
DATE 03/23/26
NORTH DAKOTA

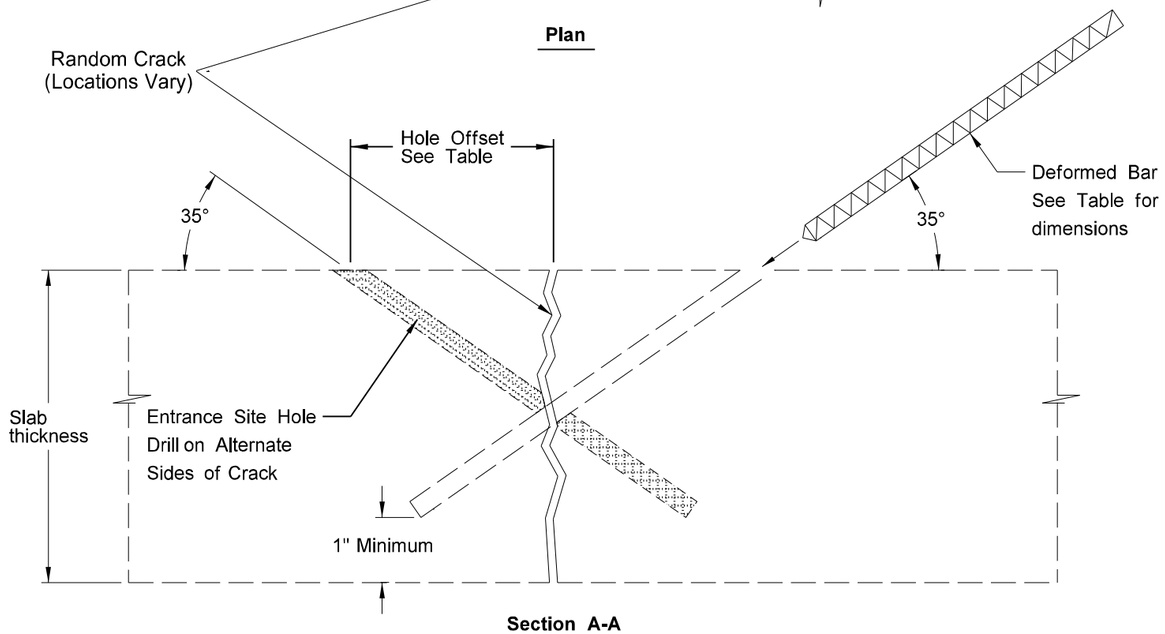
Spall Repair Details
US 2 WB
RP 22.346 to 31.774

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	20	7

See CPR Data Tables
for Random Crack Stitching
Locations.



Plan



Section A-A

Cross Stitching Bar Dimensions & Hole Locations (No 6 Bars)		
Slab Thickness (inches)	Hole Offset (inches)	Bar Length (inches)
8	5.75	9.50
8 ½	6.25	10.25
9	6.50	11.00
9 ½	7.00	11.75
10	7.25	12.50
10 ½	7.50	13.25
11	7.75	14.50
11 ½	8.25	15.25
12	8.50	16.00

Notes:

1. Epoxy deformed bar into hole. Length shown in table provides 1-inch cover at surface and assume drilling per note 2.
2. Do not drill hole completely through slab. Stop drilling so epoxy/grout will not run out of the bottom when filling.

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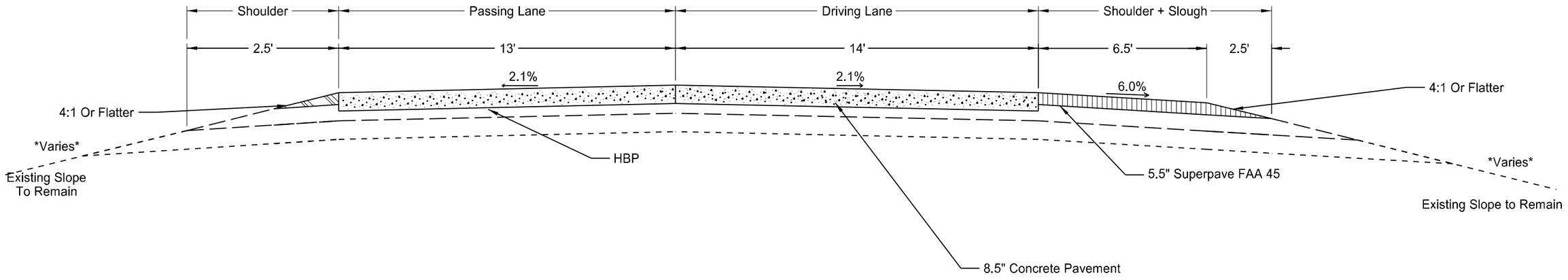
Random Crack Sticthing Detail
US 2 WB
RP 22.346 to 31.774

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	30	1

Existing & Proposed Typical Section

(Excluding turn lanes)



Existing & Proposed

Typical Section
US 2 WB
RP 22.346 to 31.774

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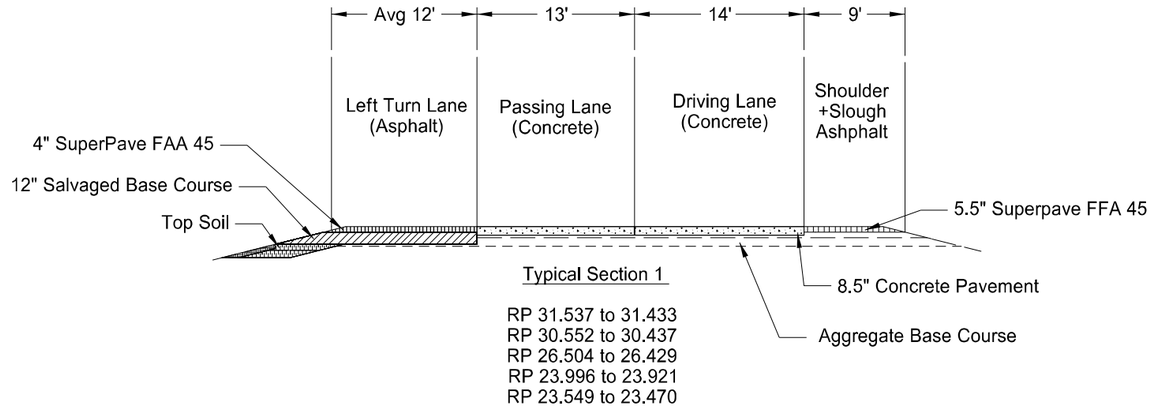
NORTH DAKOTA

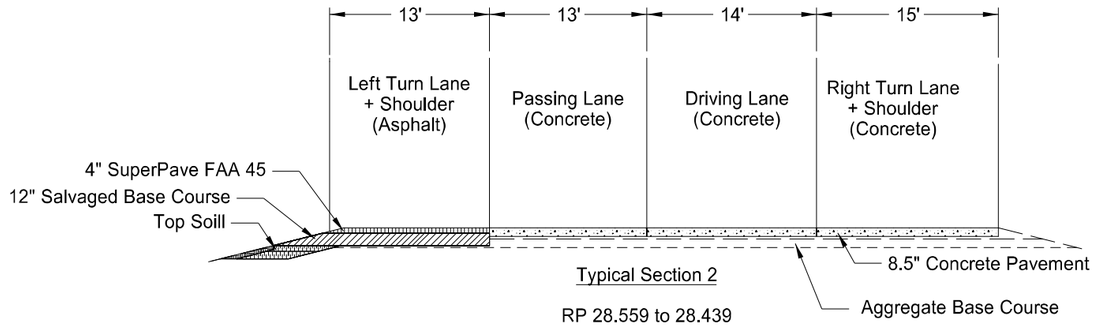
3/20/2026 1:50:41 PM bsouta F:\Williston\Project\2026\NH-7-002(195)022_24776\Microstation\030TP_001_Existing_Typical.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	30	2



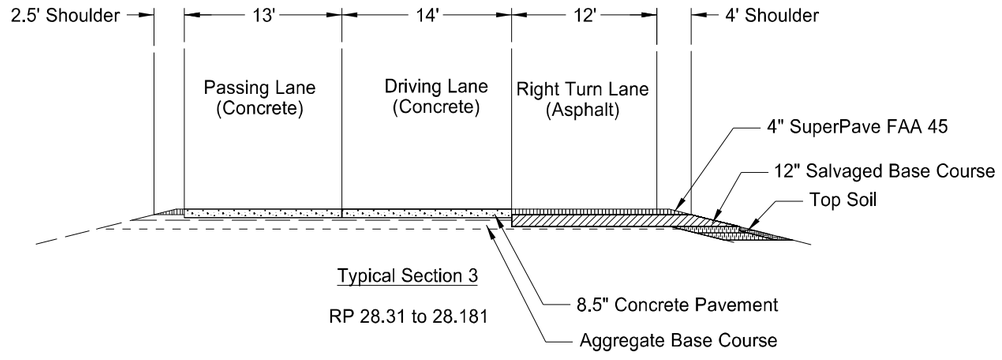
Typical Section 1

RP 31.537 to 31.433
RP 30.552 to 30.437
RP 26.504 to 26.429
RP 23.996 to 23.921
RP 23.549 to 23.470



Typical Section 2

RP 28.559 to 28.439



Typical Section 3

RP 28.31 to 28.181

Existing/Proposed

Typical Sections
US 2 WB

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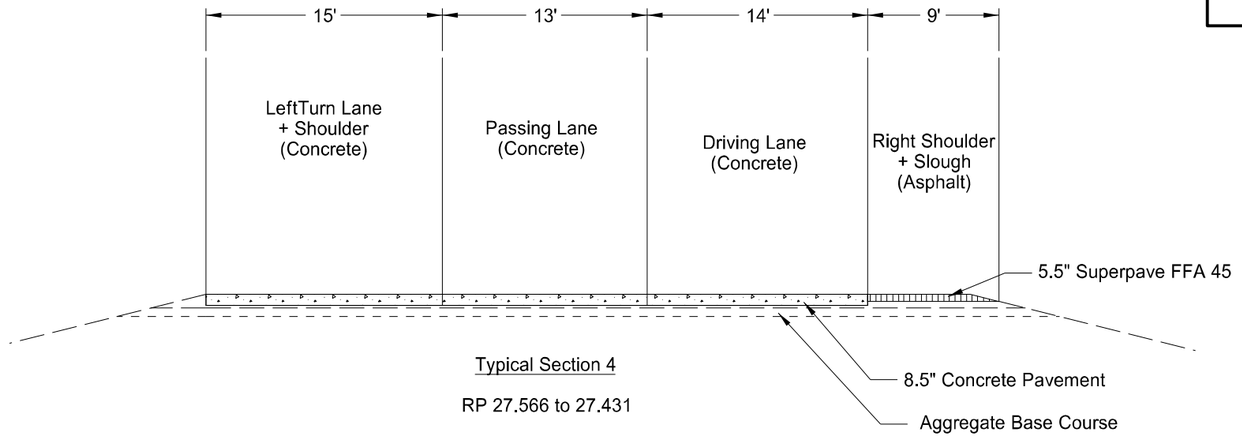
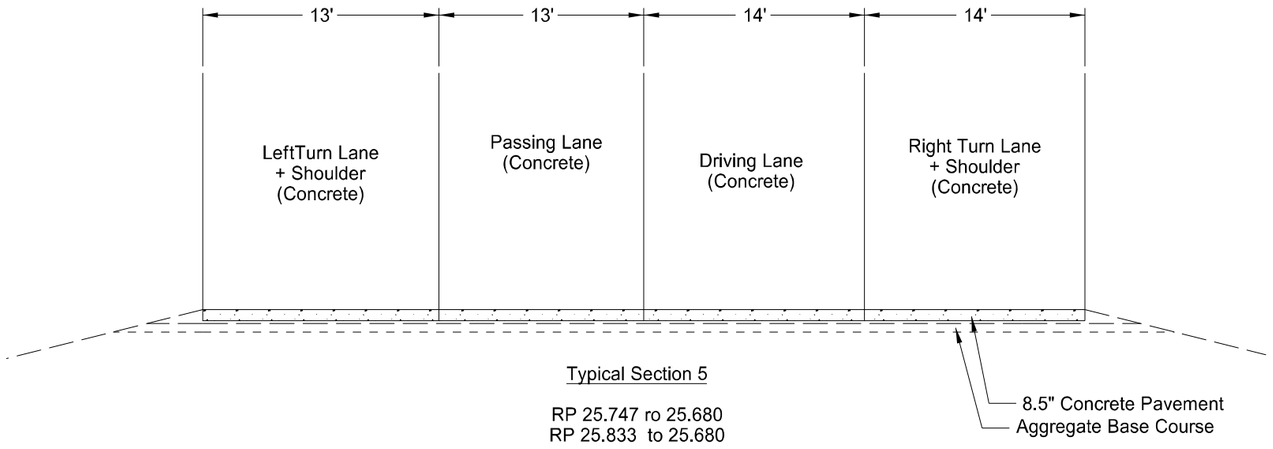
DATE 03/23/26
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	30	3



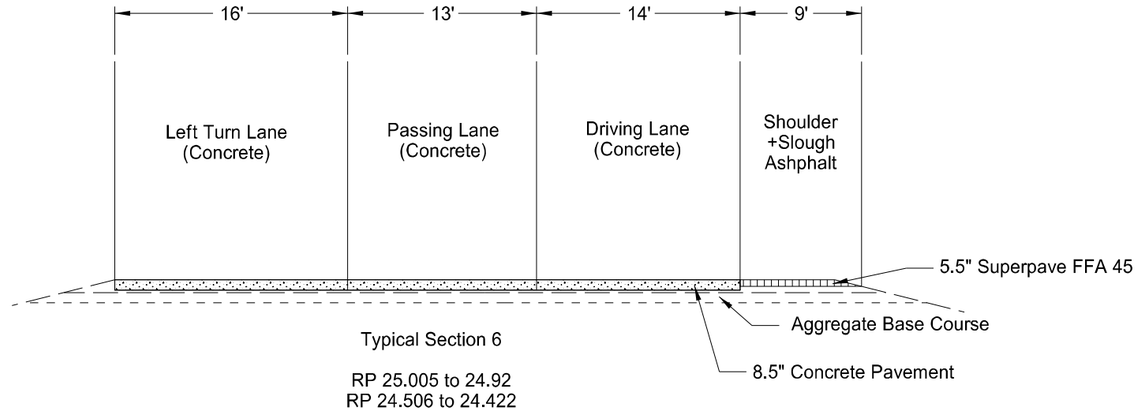
Typical Section 4

RP 27.566 to 27.431



Typical Section 5

RP 25.747 ro 25.680
RP 25.833 to 25.680



Typical Section 6

RP 25.005 to 24.92
RP 24.506 to 24.422

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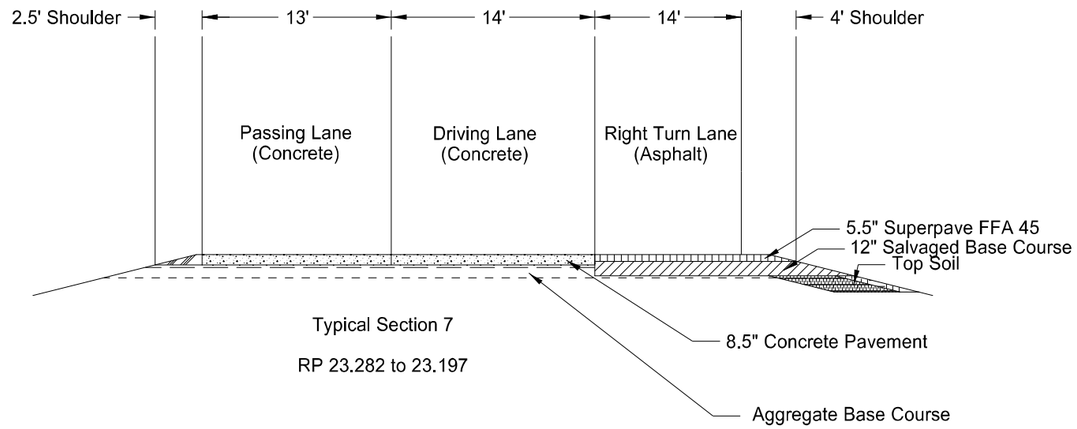
NORTH DAKOTA

Exising/Proposed

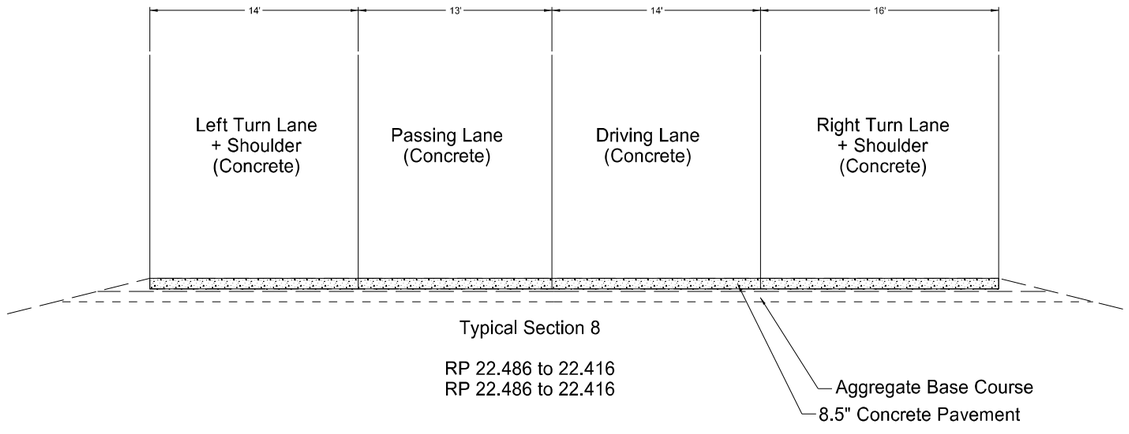
Typical Sections
US 2 WB

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	30	4



Typical Section 7

RP 23.282 to 23.197



Typical Section 8

RP 22.486 to 22.416
RP 22.486 to 22.416

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

Existing/Proposed

Typical Sections
US 2 WB

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-7-002(195)022	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	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**	**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**	**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		43	
G20-52a-72	**72"x24"**	**ROAD WORK NEXT __ MILES RT or LT ARROW**	**14**	**36**	**504**
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT**	**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**	**6**	**32**	**192**
R1-2-60	60"x60"	YIELD		29	
R2-1-36	**36"x48"**	**SPEED LIMIT __ (Portable only)**	**16**	**30**	**480**
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**12**	**39**	**468**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $150 (Mounted on Speed Limit post)**	**8**	**10**	**80**
R3-2-48	48"x48"	NO LEFT TURN		35	
R4-1-48	48"x60"	DO NOT PASS		39	
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		35	
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**4**	**35**	**140**
W4-2-48	**48"x48"**	**LANE ENDS RIGHT or LEFT**	**4**	**35**	**140**
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		35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER LINE		35	
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**	**18**	**35**	**630**
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**	**4**	**35**	**140**
W20-7-48	48"x48"	FLAGGER		35	
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back		5	
W20-52P-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)		12	
W21-1-48	48"x48"	WORKERS		35	
W21-2-48	48"x48"	FRESH OIL		35	
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	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		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE		35	

SPECIAL SIGNS

SPEC & CODE

704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	3000

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	
704-1048	PORTABLE RUMBLE STRIPS	EACH	
704-1050	**TYPE I BARRICADES**	**EACH**	**173**
704-1052	**TYPE III BARRICADES**	**EACH**	**10**
704-1060	**DELINEATOR DRUMS**	**EACH**	**97**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**189**
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	**STACKABLE VERTICAL PANELS**	**EACH**	**346**
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**	**2**
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/

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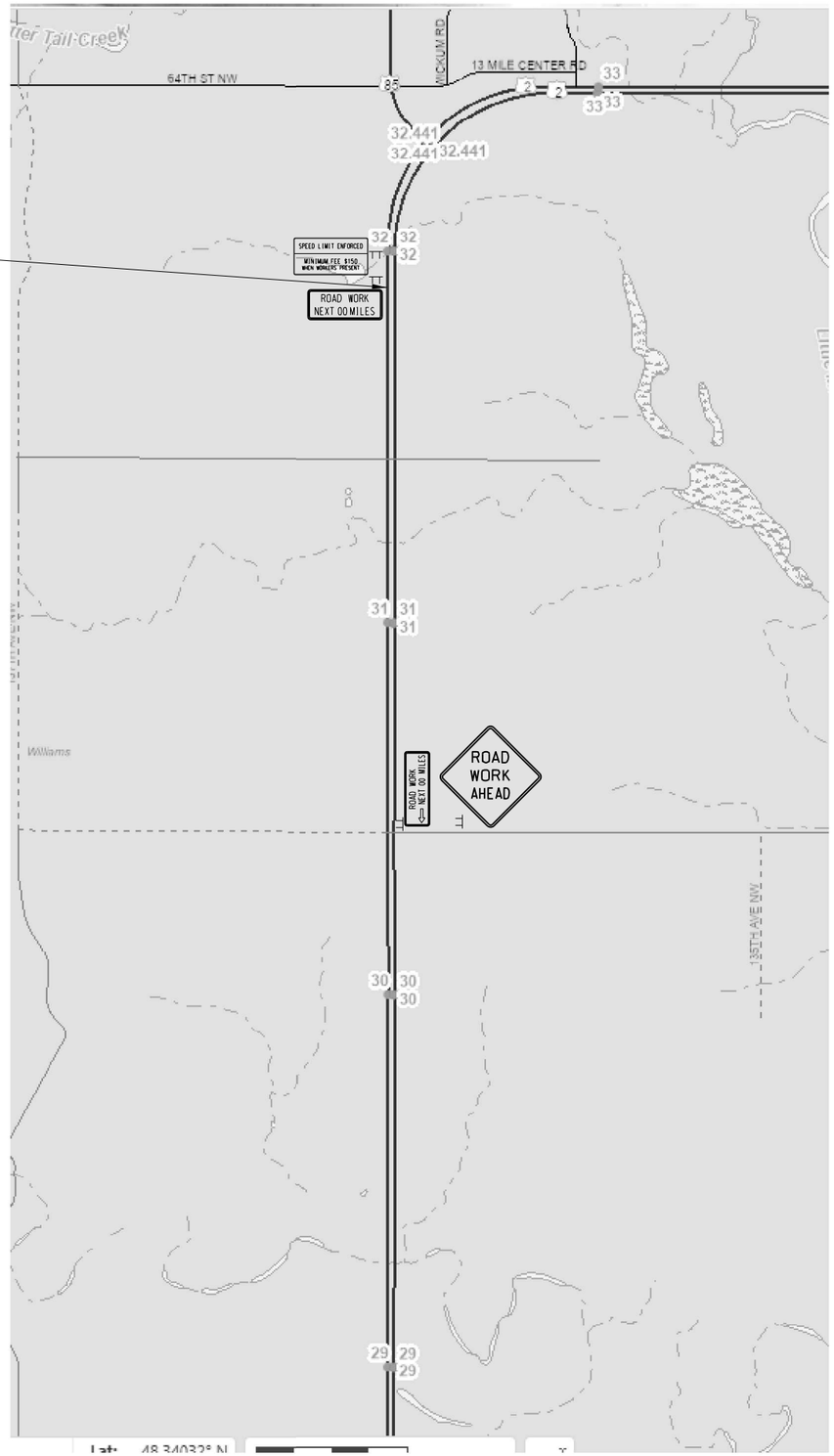
Traffic Control Devices List

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	100	2



Beginning Project
RP 31.774 WB CPR

N

ROAD WORK NEXT 00 MILES
G20-52a-72

ROAD WORK AHEAD
W20-1-48

ROAD WORK NEXT 00 MILES
G20-1-60 *Mirror signs in median

SPEED LIMIT ENFORCED
MINIMUM FEE $150 WHEN WORKERS PRESENT
G20-55-96 *Mirror signs in median

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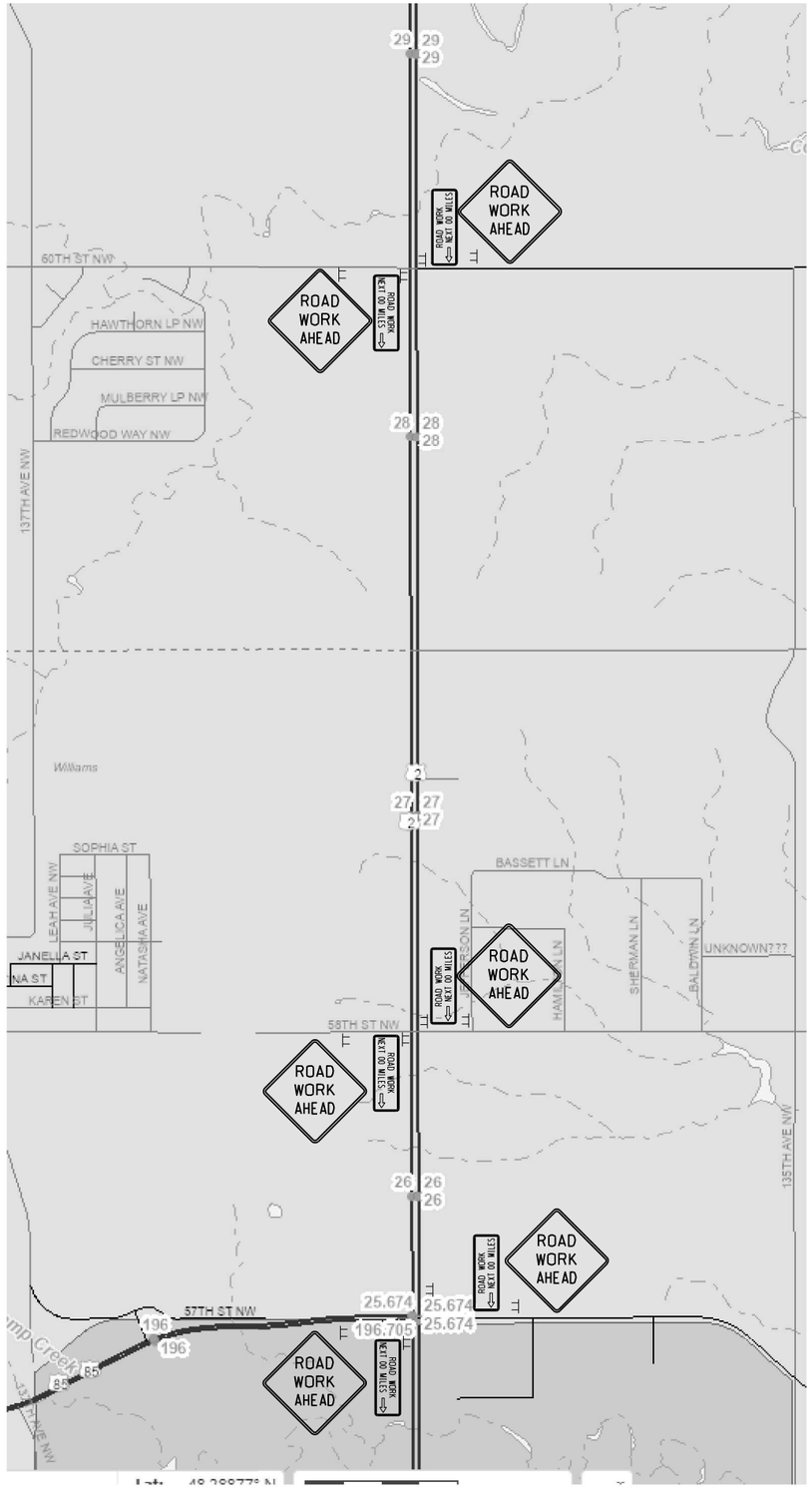
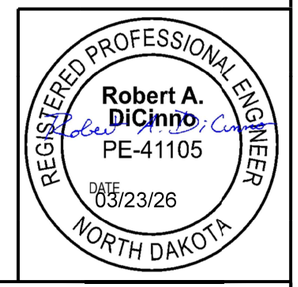
Terminal Signing
US 2 WB
CPR
RP 29.000 to 31.774

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	100	3



G20-52a-72

W20-2-48



Terminal Signing
US 2 WB
CPR
RP 25.674 to 29.000

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-7-002(195)022	100	4

END ROAD WORK

G20-2-48 * Mirror signs in median

ROAD WORK NEXT 00 MILES ⇨

⇦ ROAD WORK NEXT 00 MILES

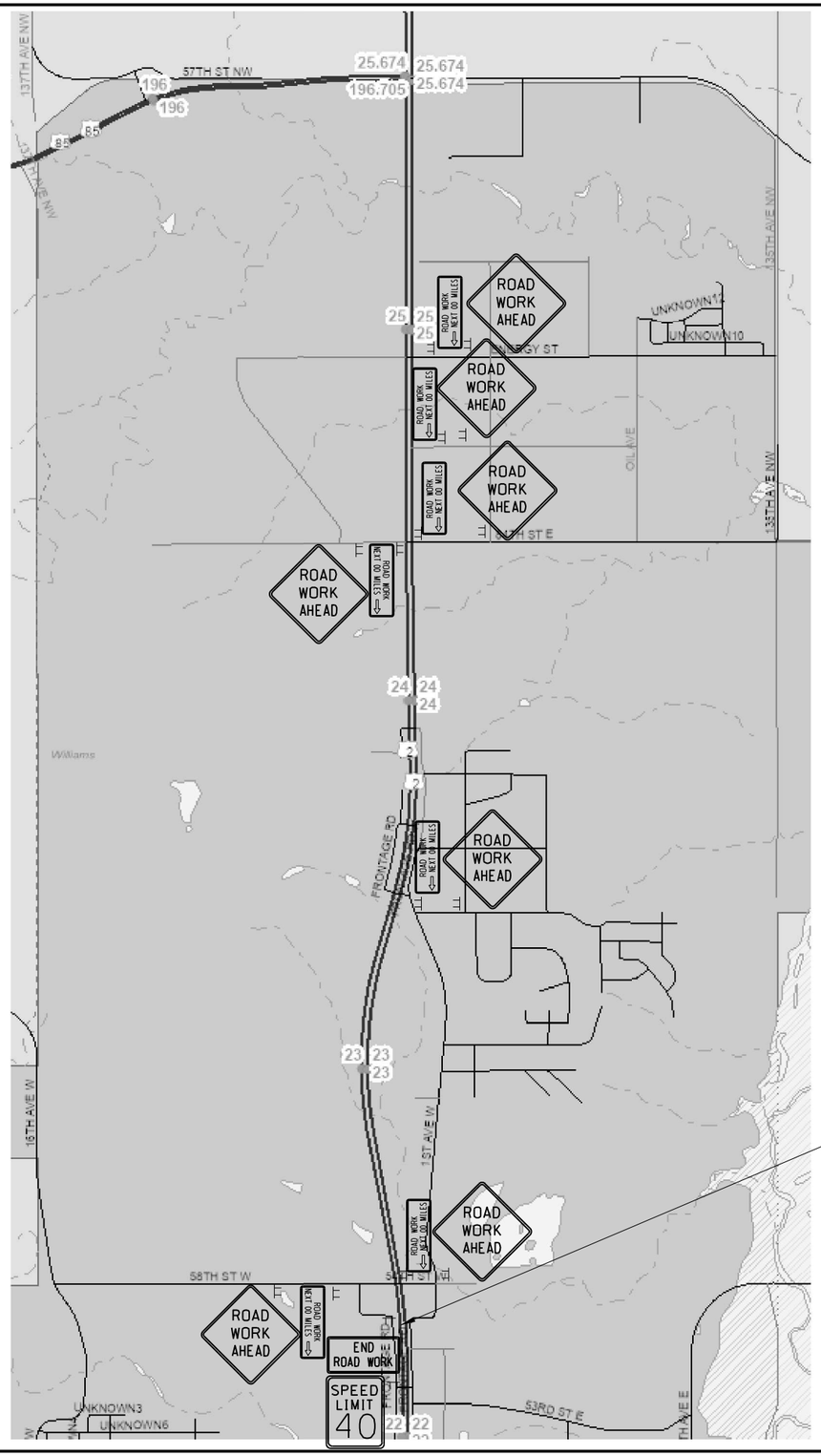
G20-52a-72

SPEED LIMIT 40

R-2-148 * Mirror signs in median

ROAD WORK AHEAD

W20-1-48



Ending Project
RP 22.346 WB CPR

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Terminal Signing
US 2 WB
CPR
RP 22.346 to 25.000

NDDOT ABBREVIATIONS

D-101-1

?	This is a special text character used in the labeling of existing features. It indicates a feature that has an unknown characteristic, potentially based on: lack of description, location accuracy or purpose.
Abn	abandoned
Abut	abutment
Adj	adjusted
Aggr	aggregate
Ahd	ahead
ARV	air release valve
Align	alignment
Al	alley
Alt	alternate
Alum	aluminum
ADA	Americans with Disabilities Act
&	and
Appr	approach
Approx	approximate
ACP	asbestos cement pipe
Asph	asphalt
AC	asphalt cement
Assmd	assumed
@	at
Atten	attenuation
ATR	automatic traffic recorder
Ave	Avenue
Avg	average
ADT	average daily traffic
Bk	back
BF	back face
Balc	balcony
B Wire	barbed wire
Barr	barricade
Btry	battery
BI	beehive inlet
Beg	begin
BG	below grade
BM	bench mark
Bkwy	bikeway
Bit	bituminous
Blk	block
BH	bore hole
Bot	bottom
Blvd	Boulevard
Bndry	boundary
Brkwy	breakaway
Br	bridge
Bldg	building
Bus.	business
BV	butterfly valve
Byp	bypass
C Gdrl	cable guardrail
Calc	calculate
CIP	cast iron pipe
CB	catch basin
CRS	cationic rapid setting
C Gd	cattle guard
C To C	center to center
CL or ℄	centerline
Ch	chain
Chnlk	chain-link
Ch Blk	channel block
Ch Ch	channel change
Chk	check
Chsld	chiseled
Cir	circle
Cl	class
Clnt	clean-out
Clr	clear
Cl&gr	clearing & grubbing
Comb.	combination
Coml	commercial
Compr	compression
CADD	computer aided drafting & design
Conc	concrete
CECB	concrete erosion control blanket
Cond	conductor
Const	construction
Cont	continuous
CSB	continuous split barrel sample
Contr	contraction
Contr	contractor
CP	control point
Coord	coordinate
Cor	corner
Corr	corrected
CAES	corrugated aluminum end section
CAP	corrugated aluminum pipe
CMES	corrugated metal end section
CMP	corrugated metal pipe
CPVCP	corrugated poly-vinyl chloride pipe
CSES	corrugated steel end section
CSFES	corrugated steel flared end section
CSP	corrugated steel pipe
CSTES	corrugated steel traversable end section
Co	County
Crse	course
Ct	Court
Xarm	cross arm
Xbuck	cross buck
Xsec	cross sections
Xing	crossing
Xrd	crossroad
Crn	crown
Culv	culvert
C&G	curb & gutter
CI	curb inlet
CR	curb ramp
C	cut
Dd Ld	dead load
Defl	deflection
Defm	deformed
Dlnt	delineate
Dlntr	delineator
Depr	depression
Desc	description
Det	detail
DWP	detectable warning panel
Dtr	detour
Dia or ø	diameter
Dir	direction
Dist	distance
DM	disturbed material
DB	ditch block
DG	ditch grade
Dbl	double
Dn	down
Dwg	drawing
Dr	drive
Drwy	driveway
DI	drop inlet
D	dry density
Ea	each
Esmt	easement
E	East
EB	Eastbound
Elast	elastomeric
EL	electric locker
E Mtr	electric meter
Elec	electric/al
EDM	electronic distance meter
Elev or El	elevation
Ellipt	elliptical
Emb	embankment
Emuls	emulsion/emulsified
ES	end section
Engr	engineer
ESS	environmental sensor station
Eq	equal
Evgr	evergreen
Exc	excavation
Exst	existing
Exp	expansion
Expy	Expressway
E	external of curve
Extru	extruded
FOS	factor of safety
Fed	Federal
FP	feed point
Fn	fence
Fn P	fence post
FO	fiber optic
FD	field drive
F	fill
FAA	fine aggregate angularity
FH	fire hydrant
Fl	flange
Flrd	flared
FES	flared end section
F Bcn	flashing beacon
FA	flight auger sample
FL	flow line
Ftg	footing
FM	force main
Fnd	found
Fdn	foundation
Frac	fractional
Frwy	freeway
Frt	front
FF	front face
F Disp	fuel dispenser
FFP	fuel filler pipes
FLS	fuel leak sensor
Furn	furnish/ed

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
04-23-18	General Revisions
09-20-18	General Revisions
12-18-20	General Revisions
08-16-22	General Revisions

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08/16/22

NDDOT ABBREVIATIONS

D-101-2

Galv	galvanized
Gar	garage
Gs L	gas line
G Reg	gas line regulator
GMV	gas main valve
G Mtr	gas meter
GSV	gas service valve
GVP	gas vent pipe
GV	gate valve
Ga	gauge
Gov	government
Grd	graded/grade
Grnd	ground
GWM	ground water monitor
Gdrl	guardrail
Gtr	gutter
H Plg	H piling
Hdwl	headwall
Ht	height
Hel	helical
HDPE	high density polyethylene
HM	high mast
HP	high pressure
HPS	high pressure sodium
HTCG	high tension cable guardrail
Hwy	highway
Hor	horizontal
HBP	hot bituminous pavement
HMA	hot mix asphalt
Hyd	hydrant
Ph	hydrogen ion content
Id	identification
Incl	inclinometer tube
IMH	inlet manhole
ID	inside diameter
Inst	instrument
Intchg	interchange
Intmdt	intermediate
Intscn	intersection
Inv	invert
IP	iron pipe
Jt	joint
Jct	junction
Ln	lane
Lg	large
Lat	latitude
Lt	left
Lens	lenses
Lvl	level
Lvlng	leveling
Lht	light
LP	light pole
Ltg	lighting
Liq	liquid
LL	liquid limit
Loc	location
Long.	longitude
Lp	loop
LD	loop detector
Lum	luminaire
Mb	mailbox
ML	main line
MH	manhole
Mkd	marked
Mkr	marker
Mkg	marking
MA	mast arm
Matl	material
Max	maximum
MC	meander corner
Meas	measure
Mdn	median
MD	median drain
MC	medium curing
MGS	Midwest Guardrail System
MM	mile marker
MP	mile post
Min	minimum
Misc	miscellaneous
Mon	monument
Mnd	mound
Mtbl	mountable
Mtd	mounted
Mtg	mounting
Mk	muck
Neop	neoprene
Ntwk	network
N	North
NE	North East
NW	North West
NB	Northbound
No. or #	number
Obsc	obscure(d)
Ocpd	occupied
Ocpy	occupy
O/s	offset
OC	on center
C	one dimensional consolidation
OC	organic content
Orig	original
O To O	out to out
OD	outside diameter
OH	overhead
PMT	pad mounted transformer
Pg	pages
Pntd	painted
Pr	pair
Pnl	panel
Pk	park
PSD	passing sight distance
Pvmt	pavement
Ped	pedestal
Ped	pedestrian
PPP	pedestrian pushbutton post
Pen.	penetration
Perf	perforated
Per.	perimeter
Perm	permanent
PL	pipeline
Pl	place
P&P	plan & profile
PL	plastic limit
Pl or ℄	plate
Pt	point
PE	polyethylene
PVC	polyvinyl chloride
PCC	Portland Cement concrete
PP	power pole
Preempt	preemption
Prefab	prefabricated
Prfmd or Pref	preformed
Prep	preperation
Press.	pressure
PRV	pressure relief valve
Prestr	prestressed
Pvt	private
PD	private drive
Prod.	production/produce
Prog	programmed
Prop.	property
Prop Ln	property line
Ppsd	proposed
PB	pull box
Qty	quantity
Qtr	quarter
Rad or R	radius
RR	railroad
Rlwy	railway
Rsd	raised
RC	rapid curing
Rec	record
Rcy	recycle
RAP	recycled asphalt pavement
RPCC	recycled portland cement concrete
Ref	reference
R Mkr	reference marker
RM	reference monument
RP	reference point
Refl	reflectorized
RCB	reinforced concrete box
RCES	reinforced concrete end section
RCFES	reinforced concrete flared end section
RCP	reinforced concrete pipe
RCPS	reinforced concrete pipe sewer
RCTES	reinforced concrete traversable end section
Reinf	reinforcement
Res	reservation
Res	residence
Ret	retaining
Rev	reverse
Rt	right
R/W	right of way
Riv	river
Rd	road
Rdbd	road bed
Rdwy	roadway
RWIS	roadway weather information system
Rk	rock
Rt	route

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
08-03-15	General Revisions
04-23-18	General Revisions
12-18-20	General Revisions
08-16-22	General Revisions

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Salv	salvage(d)
San	sanitary sewer line
Sec	section
SL	section line
Sep	separation
Seq	sequence
Serv	service
Sht	sheet
Shtng	sheeting
Shldr	shoulder
Sw or Sdwk	sidewalk
SD	sight distance
SN	sign number
Sig	signal
Sgl	single
SRCP	slotted reinforced concrete pipe
SC	slow curing
SS	slow setting
Sm	small
S	South
SE	South East
SW	South West
SB	Southbound
Sp	spaces
Spcl	special
SA	special assembly
SP	special provisions
G	specific gravity
Spk	spike
SB	split barrel sample
SH	sprinkler head
SV	sprinkler valve
Sq	square
Stk	stake
Std	standard
N	standard penetration test
Std Specs	standard specifications
Stm L	steam line
SEC	steel encased concrete
SMA	stone matrix asphalt
SSD	stopping sight distance
SD	storm drain
St	street
SPP	structural plate pipe
SPPA	structural plate pipe arch
Str	structure
Subd	subdivision
Sub	subgrade
Sub Prep	subgrade preperation
Ss	subsoil
SS	supplement specification
Supp	supplemental
Surf	surfacing
Surv	survey
Sym	symmetrical

Tel	telephone
Tel B	Telephone Booth
Tel P	telephone pole
Tv	television
Temp	temperature
Temp	temporary
TBM	temporary bench mark
T	thinwall tube sample
Ts	topsoil
Traf	traffic
TSCB	traffic signal control box
Tr	trail
Transf	transformer
Trans	transition
TT	transmission tower
TES	traversable end section
Trans	transverse
Trtd	treated
Trmt	treatment
Qc	triaxial compression
TERO	tribal employment rights ordinance
Tpl	triple
Typ	typical
Qu	unconfined compressive strength
Ugrnd	underground
Util	utility
VG	valley gutter
Vap	vapor
Vert	vertical
VCP	vitrified clay pipe
Vol	volume
VSFS	vehicle speed feedback sign
Wkwy	walkway
W	water content
WGV	water gate valve
WL	water line
WM	water main
WMV	water main valve
W Mtr	water meter
WSV	water service valve
WW	water well
Wrng	wearing
WIM	weigh in motion
W	west
WB	westbound
Wrng	wiring
W/	with
W/o	without
WC	witness corner

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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DATE	CHANGE
08-03-15	General Revisions
04-23-18	General Revisions
12-18-20	General Revisions
08-16-22	General Revisions

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NDDOT ABBREVIATIONS

MEASUREMENTS

ac	acres
A	ampere
Bd Ft	board feet
Cd	candela
cm	centimeter
C	coulomb
CF	cubic feet
m3	cubic meter
m3/s	cubic meters per second
CY	cubic yard
CY/mi	cubic yards per mile
D or Deg	degree
F	Fahrenheit
F	farad
ft	feet/foot
Gal	gallon
G	giga
Ha	hectare
H	henry
Hz	hertz
hr	hour(s)
in	inch
J	joule
K	kelvin
kN	kilo newton
kPa	kilo pascal
kg	kilogram
kg/m3	kilogram per cubic meter
km	kilometer
K	Kip(s)
LF	linear foot
L	litre
Lm	lumen
L sum	lump sum
Lx	lux
M Hr	man hour
M	mega
m	meter
m/s	meters per second
mi	mile
mL	milliliter
mm	millimeter
mm/hr	millimeters per hour
n	nano
N	newton
Pa	pascal
lb	pounds
sec	seconds
S	siemens
SF	square feet
km2	square kilometer
m2	square meter
SY	square yard
Sta Yd	station yards
SI	Systems International
T	tesla
T/mi	tons per mile
V	volt
W	watt
Wb	weber

SURVEY DESCRIPTIONS

Az	azimuth
Bs	backsight
Brg	bearing
BP Cap	blue plastic cap
BS	both sides
BC	brass cap
CS	curve to spiral
Eq	equation
E	external of curve
FS	far side
FB	field book
Fs	foresight
Geod	geodetic
GIS	Geographical Information System
GPS	Global Positioning System
HI	height of instrument
IM	iron monument
I Pn	iron pin
LS	Land Surveyor (licensed)
LSIT	Land Surveyor In Training
L	length of curve
LC	long chord
LB	level book
Mer	meridian
M	mid ordinate of curve
NGS	National Geodetic Survey
NS	near side
Obsn	observation
Off Loc	office location
OP Cap	orange plastic cap
PK	Parker-Kalon nail
P Cap	plastic cap
PP Cap	pink plastic cap
PCC	point of compound curve
PC	point of curve
PI	point of intersection
PRC	point of reverse curvature
PT	point of tangent
POC	point on curve
POT	point on tangent
RTP	random traverse point
Rge	range
RP Cap	red plastic cap
SC	spiral to curve
ST	spiral to tangent
Sta	station
SE	superelevation
Tan	tangent
T	tangent (semi)
TS	tangent to spiral
Twp	township
TB	transit book
TP	traverse point
TP	turning point
USC&G	US Coast & Geodetic Survey
USGS	US Geologic Survey
VC	vertical curve
WGS	World Geodetic System
YP Cap	yellow plastic cap
Z	zenith

SOIL TYPES

Cl	clay
Cl F	clay fill
Cl Hvy	clay heavy
Cl Lm	clay loam
Co S	coal slack
C Gr	coarse gravel
CS	coarse sand
FS	fine sand
Gr	gravel
Lig Co	lignite coal
Lig Sl	lignite slack
Lm	loam
Rk	rock
Sd	sand
Sdy Cl	sandy clay
Sdy Cl Lm	sandy clay loam
Sdy Fl	sandy fill
Sdy Lm	sandy loam
Sc	scoria
Sh	shale
Si Cl	silt clay
Si Cl Lm	silty clay loam
Si Lm	silty loam

NORTH DAKOTA
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07-01-14

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NDDOT UTILITY COMPANY AND ORGANIZATION ABBREVIATIONS

D-101-10

702COM	702 Communications
ACCENT	Accent Communications
AGASSIZ WU	Agassiz Water Users Incorporated
AGC	Assiociated General Contractors of America
ALL PL	Alliance Pipeline
ALL SEAS WU	All Seasons Water Users Association
AMOCO PI	Amoco Pipeline Company
AMRDA HESS	Amerada Hess Corporation
AT&T	AT&T Corporation
B PAW	Bear Paw Energy Incorporated
BAKER ELEC	Baker Electric
BASIN ELEC	Basin Electric Cooperative Incorporated
BEK TEL	Bek Communications Cooperative
BELLE PL	Belle Fourche Pipeline Company
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe Railway
BOEING	Boeing
BRNS RWD	Barnes Rural Water District
BURK-DIV ELEC	Burke-Divide Electric Cooperative
BURL WU	Burleigh Water Users
CABLE ONE	Cable One
CABLE SERV	Cable Services
CAP ELEC	Capital Electric Cooperative Incorporat
CASS CO ELEC	Cass County Electric Cooperative
CASS RWU	Cass Rural Water Users Incorporated
CAV ELEC	Cavalier Rural Electric Cooperative
CBLCOM	Cablecom Of Fargo
CENEX PL	Cenex Pipeline
CENT PL WATER DIST	Central Pipe Line Water District
CENT PWR ELEC	Central Power Electric Cooperative
CENTURYLINK	CenturyLink
COE	Corps of Engineers
CONS TEL	Consolidated Telephone
CONT RES	Continental Resource Inc
CPR	Canadian Pacific Railway
D O E	Department Of Energy
DAK CARR	Dakota Carrier Network
DAK CENT TEL	Dakota Central Telephone
DAK RWD	Dakota Rural Water District
DGC	Dakota Gasification Company
DICKEY R NET	Dickey Rural Networks
DICKEY RWU	Dickey Rural Water Users Association
DICKEY TEL	Dickey Telephone
DNRR	Dakota Northern Railroad
DOME PL	Dome Pipeline Company
DVELEC	Dakota Valley Electric Cooperative
DVMW	Dakota, Missouri Valley & Western
ENBRDG	Enbridge Pipelines Incorporated
ENVENTIS	Enventis Telephone
EQUINOR	Equinor Pipeline
FALK MNG	Falkirk Mining Company
FHWA	Federal Highway Administration
G FKS-TRL WD	Grand Forks-traill Water District
GETTY TRD & TRAN	Getty Trading & Transportation
GLDN W ELEC	Golden West Electric Cooperative
GRGS CO TEL	Griggs County Telephone
GTR RAMSEY WD	Greater Ramsey Water District
GT PLNS NAT GAS	Great Plains Natural Gas Company
HALS TEL	Halstad Telephone Company
IDEA1	Idea1
INT-COMM TEL	Inter-Community Telephone Company
KANEB PL	Kaneb Pipeline Company
KEM ELEC	Kem Electric Cooperative Incorporated
KOCH GATH SYS	Koch Gathering Systems Incorporated
LKHD PL	Lakehead Pipeline Company
LNGDN RWU	Langdon Rural Water Users Incorporated
LWR YELL R ELEC	Lower Yellowstone Rural Electric
MCKNZ CON	McKenzie Consolidated Telcom
MCKNZ ELEC	McKenzie Electric Cooperative
MCKNZ WRD	McKenzie County Water Resource District
MCLEOD	McLeod USA
MCLN ELEC	McLean Electric Cooperative
MCLN-SHRDN R WAT	McLean-Sheridan Rural Water
MDU	Montana-dakota Utilities
MIDCO	MidContinent Communications
MIDSTATE TEL	Midstate Telephone Company
MINOT CABLE	Minot Cable Television
MINOT TEL	Minot Telephone Company
MISS VALL COMM	Missouri Valley Communications
MISS W W S	Missouri West Water System
MNKOTA PWR	Minnkota Power
MOR-GRAN-SOU ELEC	Mor-gran-sou Electric Cooperative
MOUNT-WILLI ELEC	Mountrail-williams Electric Cooperative
MRE LBTY TEL	Moore & Liberty Telephone
MUNICIPAL	City Water And Sewer
MUNICIPAL	City Of '.....'
N CENT ELEC	North Central Electric Cooperative
N VALL W DIST	North Valley Water District
ND PKS & REC	North Dakota Parks And Recreation
ND TEL	North Dakota Telephone Company
NDDOT	North Dakota Department of Transportation
NDSU SOIL SCI DEPT	NDSU Soil Science Department
NEMONT TEL	Nemont Telephone
NODAK R ELEC	Nodak Rural Electric Cooperative
NOON FRMS TEL	Noonan Farmers Telephone Company
NPR	Northern Plains Railroad
NSP	Northern States Power
NTH PRAIR RW	Northern Prairie Rural Water Association
NTHN BRDR PL	Northern Border Pipeline
NTHN PLNS ELEC	Northern Plains Electric Cooperative Incorporated
NTHWSTRN REF	Northwestern Refinery Company
NW COMM	Northwest Communication Cooperation
NWRWD	Northwest Rural Water District
ONEOK	Oneok gas
OSHA	Occupational Safety and Health Administration
OTTR TL PWR	Otter Tail Power Company
PAAP	Plains All American Pipeline
P L E M	Prairielands Energy Marketing
POLAR COM	Polar Communications
PVT ELEC	Private Electric
QWEST	Qwest Communications
R&T W SUPPLY	R & T Water Supply Association
RED RIV COMM	Red River Rural Communications
RESVTN TEL	Reservation Telephone
ROBRTS TEL	Roberts Company Telephone
R-RIDER ELEC	Roughrider Electric Cooperative
RRVW	Red River Valley & Western Railroad
S CENT REG WD	South Central Regional Water District
S E W U	South East Water Users Incorporated
SCOTT CABLE	Scott Cable Television Dickinson
SHERDN ELEC	Sheridan Electric Cooperative
SHEYN VLY ELEC	Sheyenne Valley Electric Cooperative
SKYTECH	Skyland Technologies Incorporated
SLOPE ELEC	Slope Electric Cooperative Incorporated
SOURIS RIV TELCOM	Souris River Telecommunications
ST WAT COMM	State Water Commission
STATE LN WATER	State Line Water Cooperative
STER ENG	Sterling Energy
STUT RWU	Stutsman Rural Water Users
SW PL PRJ	Southwest Pipeline Project
T M C	Turtle Mountain Communications
TCI	TCI of North Dakota
TESORO HGH PLNS PL	Tesoro High Plains Pipeline
TRI-CNTY WU	Tri-County Water Users Incorporated
TRL CO RWU	Traill County Rural Water Users
UNTD TEL	United Telephone
UPPR SOUR WUA	Upper Souris Water Users Association
US SPRINT	U.S. Sprint
USAF MSL CABLE	U.S.A.F. Missile Cable
USFWS	US Fish and Wildlife Service
USW COMM	U.S. West Communications
VRNDRY ELEC	Verendrye Electric Cooperative
W RIV TEL	West River Telephone Incorporated
WAPA	Western Area Power Administration
WAWSA	Western Area Water Supply Authority
WEB	W. E. B. Water Development Association
WILLI RWA	Williams Rural Water Association
WILSTN BAS PL	Williston Basin Interstate Pipeline Company
WLSH RWD	Walsh Water Rural Water District
WOLVRTN TEL	Wolverton Telephone
XLENER	Xcel Energy
YSVR	Yellowstone Valley Railroad

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

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LINE STYLES

D-101-20

Existing Topography

- Existing Ground Void
- Existing Cemetary Boundary
- Existing Box Culvert Bridge
- Existing Concrete Surface
- Existing Drainage Structure
- Existing Gravel Surface
- Existing Riprap
- Existing Dirt Surface
- Existing Asphalt Surface
- Existing Tie Point Line
- Existing Railroad Centerline
- Existing Guardrail Cable
- Existing Guardrail Metal
- Existing Edge of Water
- Existing Fence
- Existing Railroad
- Existing Field Line
- Exst Flow
- Existing Curb
- Existing Valley Gutter
- Existing Driveway Gutter
- Existing Curb and Gutter
- Existing Mountable Curb and Gutter

- Existing 3-Cable w Posts
- Site Boundary
- Existing Berm, Dike, Pit, or Earth Dam
- Existing Ditch Block
- Existing Tree Boundary
- Existing Brush or Shrub Boundary
- Existing Retaining Wall
- Existing Planter or Wall
- Existing W-Beam Guardrail with Posts
- Existing Railroad Switch
- Gravel Pit - Borrow Area
- Existing Wet Area-Vegetation Break
- Existing High Tension Cable Guardrail
- Existing High Tension Cable Guardrail with Posts

Proposed Topography

- 3-Cable w Posts
- Flow
- Fence
- Remove Line
- Wall
- Retaining Wall (Plan View)
- W-Beam w Posts
- High Tension Cable Guardrail with Posts

Existing Utilities

- Existing Electrical
- Existing Fiber Optic Line
- Existing TV Fiber Optic
- Existing Gas Pipe
- Existing Overhead Utility Line
- Existing Power
- Existing Fuel Pipeline
- Existing Undefined Above Ground Pipe Line
- Existing Sanitary Sewer
- Existing Sanitary Force Main
- Existing Storm Drain
- Existing Storm Drain Force Main
- Existing Culvert
- Existing Telephone Line
- Existing TV Line
- Existing Water or Steam Line
- Existing Under Drain
- Existing Slotted Drain
- Existing Conduit
- Existing Conductor
- Existing Down Guy Wire Down Guy
- Existing Underground Vault or Lift Station

Proposed Utilities

- 24 Inch Pipe
- Reinforced Concrete Pipe
- Under Drain
- Edge Drain

Traffic Utilities

- Conductor
- Fiber Optic
- Existing Loop Detector
- Existing Double Micro Loop Detector
- Micro Loop Detector Double
- Existing Micro Loop Detector
- Micro Loop Detector
- Signal Head with Mast Arm
- Existing Signal Head with Mast Arm

Sign Structures

- Existing Overhead Sign Structure
- Existing Overhead Sign Structure Cantilever
- Overhead Sign Structure Cantilever

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09-23-16 12-18-20	Added and Revised Items, Organized by Functional Groups General Revisions

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LINE STYLES

D-101-21

Right Of Way

- Easement
- Existing Easement
- Right of Way
- Existing Right of Way
- Existing Right of Way Railroad
- Existing Right of Way Not State Owned
- Existing Government Lot Line
- Existing Adjacent Block Lines
- Existing Adjacent Lot Lines
- Existing Adjacent Property Line
- Existing Adjacent Subdivision Lines
- Sight Distance Triangle Line
- Dimension Leader

Boundary Control

- Existing City Corporate Limits or Reservation Boundary
- Existing State or International Line
- Existing Township
- Existing County
- Existing Section Line
- Existing Quarter Section Line
- Existing Sixteenth Section Line
- Existing Centerline
- Tangent Line

Cross Sections and Typicals

- Existing Ground
- Existing Topsoil (Cross Section View)
- Existing Ground Void (Not Surveyed) (void — void — void — v)
- Existing Concrete
- Existing Aggregate (Cross Section View)
- Existing Curb and Gutter (Cross Section View)
- Existing Asphalt (Cross Section View)
- Existing Reinforcement Rebar

Geotechnical

- Geotextile Fabric Type D (D — D)
- Geogrid (Geo — Geo)
- Geotextile Fabric Type R (R — R)
- Geotextile Fabric Type R1 (R — R)
- Geotextile Fabric Type RR (RR — RR)
- Geotextile Fabric Type S (S — S)
- Subgrade Reinforcement

Countours

- Failure Line
- Depression Contours
- Supplemental Contour

Profile

- Subgrade, Subcut or Ditch Grade
- Topsoil Profile

Striping

- Centerline Pavement Marking
- Barrier with Centerline Pavement Marking
- Barrier Pavement Marking
- Stripe 4 IN Dotted Extension White
- Stripe 8 IN Dotted Extension White
- Stripe 8 IN Lane Drop

Pavement Joints

- Doweled Joint
- Tie Bar 30 Inch 4 Foot Center to Center
- Tie Bar 18 Inch 3 Foot Center to Center
- Tie Bar at Random Spacing

Bridge Details

- Small Hidden Object
- Large Hidden Object
- Phantom Object
- Existing Conditions Object
- Centerline Main
- Centerline Secondary
- Excavation Limits
- Proposed Ground
- Sheet Piling

Erosion Control

- Limits of Const Transition Line
- Bale Check
- Rock Check
- Floating Silt Curtain (S — S)
- Silt Fence (SF — SF)
- Excavation Limits
- Fiber Rolls

Environmental

- Wetland Mitigation
- Existing Wetland Easement USFWS
- Existing Wetland Jurisdictional
- Existing Wetland
- Tree Row

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SYMBOLS

D-101-30

North Arrow (Half Scale)

Alignment Data Point

Alignment Monument

Spot Elevation

Existing Miscellaneous Spot

Existing Access Control Arrow

Existing Benchmark

Reset USGS Marker

Iron Monument Found

Iron Pin R/W Monument

Property Corner

Iron Pin Reference Monument

Right of Way Marker (Exst, Ppsd, Reset)

Existing Federal Reference Corner

Existing Section Corner (Full, Quarter, Sixteenth, Meander)

Existing Witness Corner

Existing Control Point (CP, GPS-RTK, TRI)

Existing Traverse PI Aerial Panel

Existing Reference Marker Point NGS

Existing EFB Misc

Existing Bush or Shrub

Existing Large Evergreen Tree

Existing Small Evergreen Tree

Existing Large Tree

Existing Small Tree

Existing Tree Trunk

Cairn or Stone Circle

Existing Artifact

Existing Satellite Dish

Existing Weather Station

Existing Windmill or Tower

Reinforced Pavement

CSB Continuous Split Barrel Sample

FA Flight Auger Sample

SB Split Barrel Sample

T Thinwall Tube Sample

N Standard Penetration Test

Incl Inclinometer Tube

Excavation Unit

Existing Ground Water Well Bore Hole

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SYMBOLS

D-101-31

- Flexible Delineator
- Flexible Delineator Type A (Exst, Ppsd)
- Flexible Delineator Type B (Exst, Ppsd)
- Flexible Delineator Type C (Exst, Ppsd)
- Flexible Delineator Type D (Exst, Ppsd)
- Flexible Delineator Type E (Exst, Ppsd)
- Delineator Type A (Exst, Ppsd, Diamond Grade-Reset)
- Delineator Type B (Exst, Ppsd, Diamond Grade-Reset)
- Delineator Type C (Exst, Ppsd, Diamond Grade)
- Delineator Type D (Exst, Ppsd, Diamond Grade)
- Delineator Type E (Exst, Ppsd, Diamond Grade)
- Barricade (Type I, Type II, Type III}
- Arrow Panel (Caution Mode, Double Direction, Left Directional, Right Directional, Sequencing, Truck Mounted)
- Attenuation Device
- Truck Mounted Attenuator
- Delineator Drums
- Flagger
- Tubular Marker
- Traffic Cone
- Back to Back Vertical Panel Sign

- Highway Sign (Exst, Ppsd)
- Mile Post Type A (Exst-Ppsd-Reset)
- Mile Post Type B (Exst, Ppsd)
- Mile Post Type C (Exst, Ppsd)
- Object Marker Type I (Exst, Ppsd)
- Object Marker Type II (Exst, Ppsd)
- Object Marker Type III (Exst, Ppsd)
- Existing Reference Marker
- Road Closure Gate 18 Ft (Exst, Ppsd)
- Road Closure Gate 28 Ft (Exst, Ppsd)
- Road Closure Gate 40 Ft (Exst, Ppsd)
- Existing Railroad Battery Box
- Existing RR Profile Spot
- Existing Railroad Crossbuck
- Existing Railroad Frog
- Existing Mailbox (Private, Federal)

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SYMBOLS

D-101-32

- Existing Luminaire
- Luminaire LED
- Existing Light Standard Luminaire
- Relocate Light Standard
- Light Standard Light LED Luminaire
- Light Standard 35 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 50 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 70 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 100 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 150 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 200 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 250 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 310 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 400 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 700 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 1000 Watt High Pressure Sodium Vapor Luminaire
- Emergency Vehicle Detector
- Video Detection Camera

- High Mast Light Standard 3 Luminaire (Exst, Ppsd)
- High Mast Light Standard 4 Luminaire (Exst, Ppsd)
- High Mast Light Standard 5 Luminaire (Exst, Ppsd)
- High Mast Light Standard 6 Luminaire (Exst, Ppsd)
- High Mast Light Standard 7 Luminaire (Exst, Ppsd)
- High Mast Light Standard 8 Luminaire (Exst, Ppsd)
- High Mast Light Standard 9 Luminaire (Exst, Ppsd)
- High Mast Light Standard 10 Luminaire (Exst, Ppsd)
- Overhead Sign Structure Load Center (Exst, Ppsd)
- Traffic Signal Controller (Exst, Ppsd)
- Pad Mounted Traffic Signal Controller (Exst, Ppsd)
- Flashing Beacon (Exst, Ppsd)
- Concrete Foundation (Exst, Ppsd)
- Pipe Mounted Flasher (Exst, Ppsd)
- Pad Mounted Feed Point (Exst, Ppsd)
- Pipe Mounted Feed Point with Pad (Exst, Ppsd)
- Pole Mounted Feed Point (Exst, Ppsd)
- Junction Box (Exst, Ppsd)
- Existing Pedestrian Head with Number
- Existing Signal Head
- Pole Mounted Head
- Existing Lighting Standard Pole

- Existing Traffic Signal Standard
- Pull Box (Exst-Ppsd-Undefined)
- Intelligent Transportation Pull Box (Exst, Ppsd)
- Transformer (Exst, Ppsd)
- Power Pole (Exst-Ppsd-with Transformer)
- Wood Pole (Exst, Ppsd)
- Pedestrian Push Button Post (Exst, Ppsd)
- Existing Pole
- Existing Telephone Pole
- Existing Post
- Connection Conductor (Ground, Neutral, Phase 1, Phase 2)

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SYMBOLS

D-101-33

Existing Manhole (Electrical, Gas, Telephone)

Water Manhole (Exst, Exst with Valve)

Sanitary Sewer Manhole (Exst, Ppsd, Exst with Valve)

Sanitary Force Main Manhole (Exst, Ppsd, Exst with Valve)

Storm Drain Manhole (Exst, Ppsd, Exst with Inlet, Ppsd with Inlet)

Force Main Storm Drain Manhole (Exst, Exst with Valve)

Manhole (Ppsd, Ppsd 48 Inch, Exst Undefined)

Existing Water Appurtenance

Sprinkler Head (Exst, Ppsd)

Fire Hydrant (Exst, Ppsd)

Cleanout (Exst Sanitary, Underdrain)

Existing Catch Basin Inlet (Round, Square)

Existing Curb Inlet (Round, Square)

Existing Slotted Reinforced Concrete Pipe

Catch Basin (Riser 30 Inch, Beehive, Type A)

Inlet Mountable Curb (Type A, Type B)

Inlet Saddle Base (Type 1, Type 2)

Inlet Special (Catch Basin, Type 1, Type A)

Inlet (Tee, Type 1, Type 2, Type 2 Double)

Median Drain

Headwall (Exst, Ppsd, Ppsd Single with Vegitation Barrier,
Ppsd Double with Vegitation Barrier)

Cap or Stub
Exst Gas, Exst Sanitary, Exst Storm Drain, Ppsd Storm Drain, Exst Water

Existing Pedestal
Electrical, Telephone, Fiber Optic Telephone, TV, Fiber Optic TV, Undefined

Existing Pipe Vent
Gas, Fuel, Sanitary, Storm Drain, Water, Undefined

Valve
Exst Gas, Exst Water, Ppsd Water, Exst Undefined

Pump
Sanitary, Storm Drain, Exst Water

Corrugated Metal End Section (18, 24, 30, 36, 42, 48, 54, 60 Inch)

Reinforced Concrete End Section (18, 24, 30, 36, 42, 48, 54, 60 Inch)

Existing Utility Marker

Existing Meter

Existing Fuel Dispensers

Existing Fuel Filler Pipes

Existing Fuel Leak Sensors

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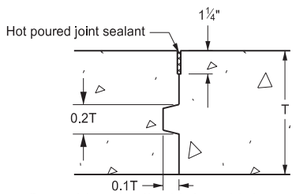
12 18 2020

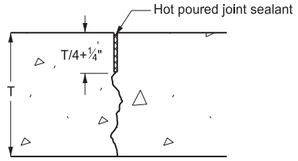
LONGITUDINAL JOINT DETAILS

D-550-2

UNTIED JOINTS

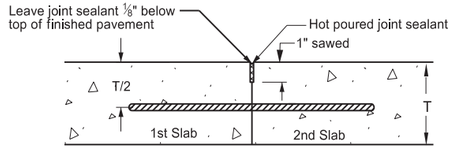


Sawed longitudinal joint with keyway



Sawed longitudinal joint without keyway

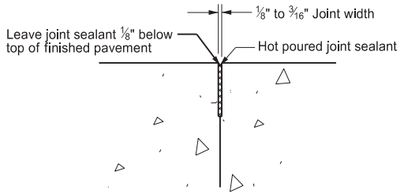
TIED JOINTS



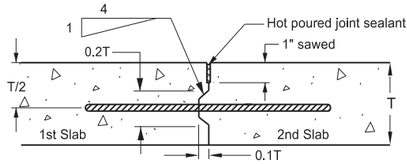
Longitudinal construction joint (tied butt joint)

Notes:

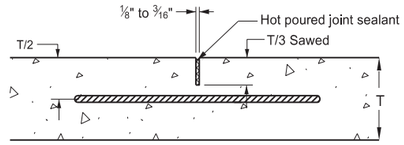
1. Provide hot poured joint sealant meeting the requirements of Section 826.02A.2 of the Standard Specifications.
2. Include all costs of the longitudinal joint and seal in the price bid for the PCC pavement.
3. Do not place tie bars within 18 inches of a transverse joint.
4. Use Grade 40 steel for tie bars installed bent and later straightened.
5. Increase the maximum tie bar spacing up to 10%, when necessary to facilitate construction.
6. Place tie Bars at a 48 inch maximum spacing.
7. A "Warp" joint is a sawed joint or a construction joint with a keyway.
8. A "Butt joint" is a construction joint with no keyway.



Contraction joint



Longitudinal construction joint (tied keyed joint)

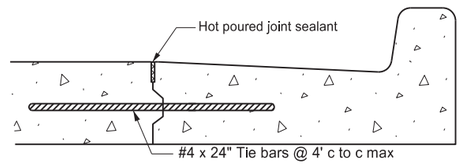


Sawed longitudinal joint

TIEBAR SPACINGS (In)*

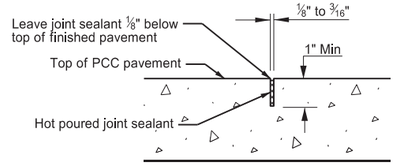
TIE BARS	STEEL GRADE	40				60						40					60						40						60						40						60					
	SIZE & LENGTH	#3x24" BARS				#3x30" BARS						#4x24" BARS					#4x36" BARS							#5x30" BARS						#5x42" BARS						#6x36" BARS						#6x48" BARS					
DIST TO NEAREST FREE EDGE		4	6	8	10	4	6	8	10	12	14	8	10	12	14	16	8	10	12	14	16	22	24	10	12	14	16	22	24	10	12	14	16	22	24	10	12	14	16	19	22	24	10	12	14	16	19	22	24
PCC PVMT DEPTH	JOINT TYPE																																															
6"	WARP		48	39			48	48				48					48																														
	BUTT		37	27			48	42				48					48																														
8"	WARP	48	39	29	24	48	48	44	35	29	25	48	42	35	30	26	48	48	48	45	39	28	26	48	48	47	41	30	27	48	48	48	48	45	41	48	48	48	48	48	43	39	48	48	48	48	48	48	48
	BUTT	42	27			48	42	31	25			37	29	24			48	44	37	32	27			46	39	33	29			48	48	48	43	32	29	48	48	48	48	35	30	27	48	48	48	48	48	45	41
8½"	WARP	48	37	28		48	48	42	33	28	24	48	39	33	28	24	48	48	48	42	37	27	24	48	48	44	38	28	25	48	48	48	48	42	38	48	48	48	48	47	40	37	48	48	48	48	48	48	48
	BUTT	39	26			44	39	29				35	27				48	42	35	29	26			44	36	31	27			48	48	47	41	30	27	48	48	45	39	33	28	26	48	48	48	48	48	42	39
9"	WARP	48	35	26		48	48	39	31	26		47	37	31	26		48	48	47	40	35	25		48	48	42	36	26	24	48	48	48	48	40	36	48	48	48	48	44	38	35	48	48	48	48	48	48	48
	BUTT	37	24			48	37	27				33	26				48	40	33	28	25			41	34	29	25			48	48	44	39	28	25	48	48	42	37	31	26	24	48	48	48	48	47	40	37
9½"	WARP	48	33	25		48	48	37	30	25		44	35	29	25		48	48	44	38	33	24		48	46	39	34	25		48	48	48	48	38	34	48	48	48	48	42	36	33	48	48	48	48	48	48	48
	BUTT	35				48	35	26				31	25				47	37	31	27				39	32	27	25			48	48	42	37	27	24	48	47	40	35	29	25		48	48	48	48	44	38	35
10"	WARP	47	31			48	47	35	28			42	34	28	24		48	48	42	36	31			48	44	37	33	24		48	48	48	48	36	33	48	48	48	48	40	34	31	48	48	48	48	48	48	47
	BUTT	33				48	33	25				29	24				45	36	29	25				37	31	26	24			48	46	40	35	25		48	45	38	33	28	24		48	48	48	48	42	36	33
10½"	WARP	45	30			48	45	34	27			40	32	26			48	48	40	34	30			48	42	36	31			48	48	48	47	34	31	48	48	48	45	38	33	30	48	48	48	48	48	48	45
	BUTT	32				48	32	24				28					42	34	28	24				35	29	25				48	44	38	33	24		48	42	36	32	27			48	48	48	48	40	34	31
11"	WARP	43	28			48	43	32	26			38	31	25			48	46	38	33	28			48	40	34	30			48	48	48	45	32	30	48	48	48	43	36	31	28	48	48	48	48	48	47	43
	BUTT	30				46	30					27					40	32	27					34	28	24				48	42	36	32			48	40	35	30	25			48	48	48	46	38	33	30
11½"	WARP	41	27			48	41	31	24			36	29	24			48	44	36	31	27			46	38	32	28			48	48	48	43	31	28	48	48	47	41	34	30	27	48	48	48	48	48	45	41
	BUTT	29				44	29					25					39	31	25					32	27					48	40	35	30			46	39	33	29	24			48	48	48	44	37	31	29
12"	WARP	39	26			48	39	29				35	28				48	42	35	30	26			44	36	31	28			48	48	47	41	30	27	48	48	45	40	33	28	26	48	48	48	48	48	43	39
	BUTT	27				42	27					25					37	30	25					31	25					48	44	38	33	29		46	39	33	29				48	48	48	42	35	30	27
12½"	WARP	38	25			48	38	28				33	27				48	40	33	29	25			42	35	30	26			48	48	45	39	28	26	48	48	43	38	32	27	25	48	48	48	48	48	41	38
	BUTT	27				40	27										35	28						29	25					44	37	32	27			42	35	30	27				48	48	45	40	34	29	26
13"	WARP	36	24			48	36	27				32	26				48	39	32	27	24			40	33	29	25			48	48	43	38	27	25	48	48	41	36	30	26	24	48	48	48	48	46	40	36
	BUTT	25				38	25										34	27						28						42	35	30	27			41	34	29	25				48	48	44	38	32	28	25
13½"	WARP	35				48	35	26				31	25				47	37	31	26				39	32	28	24			48	48	42	36	26	24	48	47	40	35	29	25		48	48	48	48	48	38	35
	BUTT	25				37	25										33	26						27						41	34	29	25			39	33	28	25				48	48	42	37	31	27	24
14"	WARP	34				48	34	25				30	24				45	36	30	25				37	31	27				48	47	40	35	25		48	45	38	34	28	24		48	48	48	48	43	37	34
	BUTT	24				35	24										32	25						26						39	33	28	25			38	32	27	24				48	47	40	35	30	26	
14½"	WARP	32				48	32	24				29					43	35	29	25				36	30	26				48	45	39	34	24		48	43	37	32	27			48	48	48	48	41	35	32
	BUTT					34											30	25						25						38	32	27	24			36	30	26					48	46	39	34	29	25	
15"	WARP	31				47	31					28					42	33	28	24				35	29	25				48	44	37	33	24		48	42	36	31	26			48	48	48	47	40	34	31
	BUTT					33											29							25						37	31	26				35	29	25					48	44	38	33	28	24	

*Spacing where the calculated pullout strength of the tiebar equals the calculated yield strength of the tiebar - 48 inch spacing indicates a calulated spacing of 4 feet or greater.



Curb and gutter sections

JOINT SEALER DETAILS



Typical section

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-15-2010	
REVISIONS	
DATE	CHANGE
10/23/2012	Expanded Tie Bar Table
03/16/2016	Updated Jt Details & notes
10/25/2019	Corrected "Typo" in Note 3
03/13/2025	Revised C&G Tie Bar Size

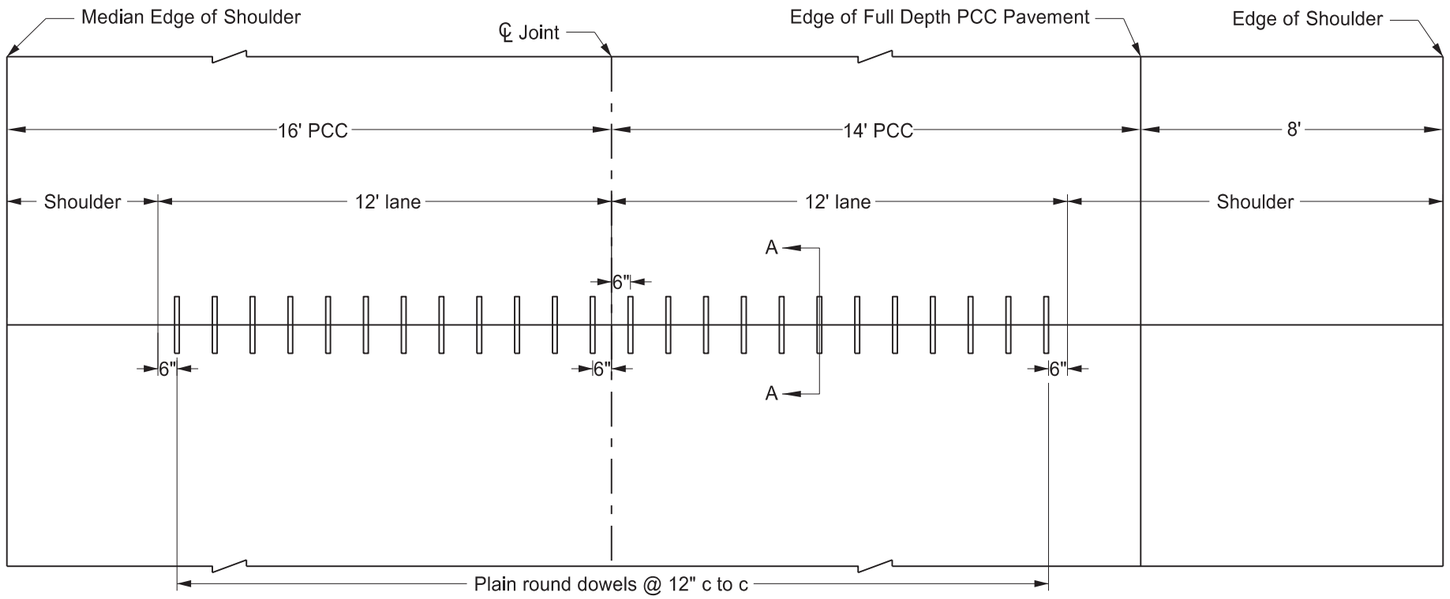
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

Kirk J Hoff

03/13/25

TRANSVERSE CONTRACTION JOINT DETAILS

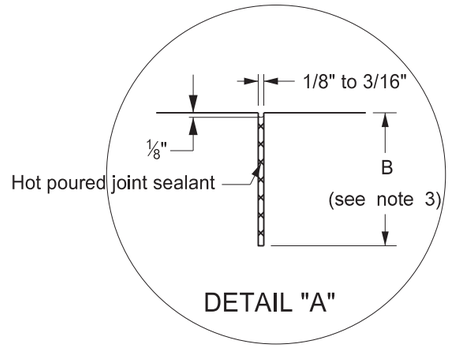
D-550-3



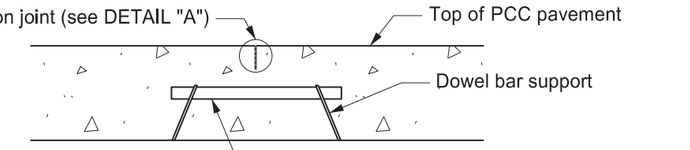
CONTRACTION JOINT DOWEL ASSEMBLY
INTERSTATE

Notes

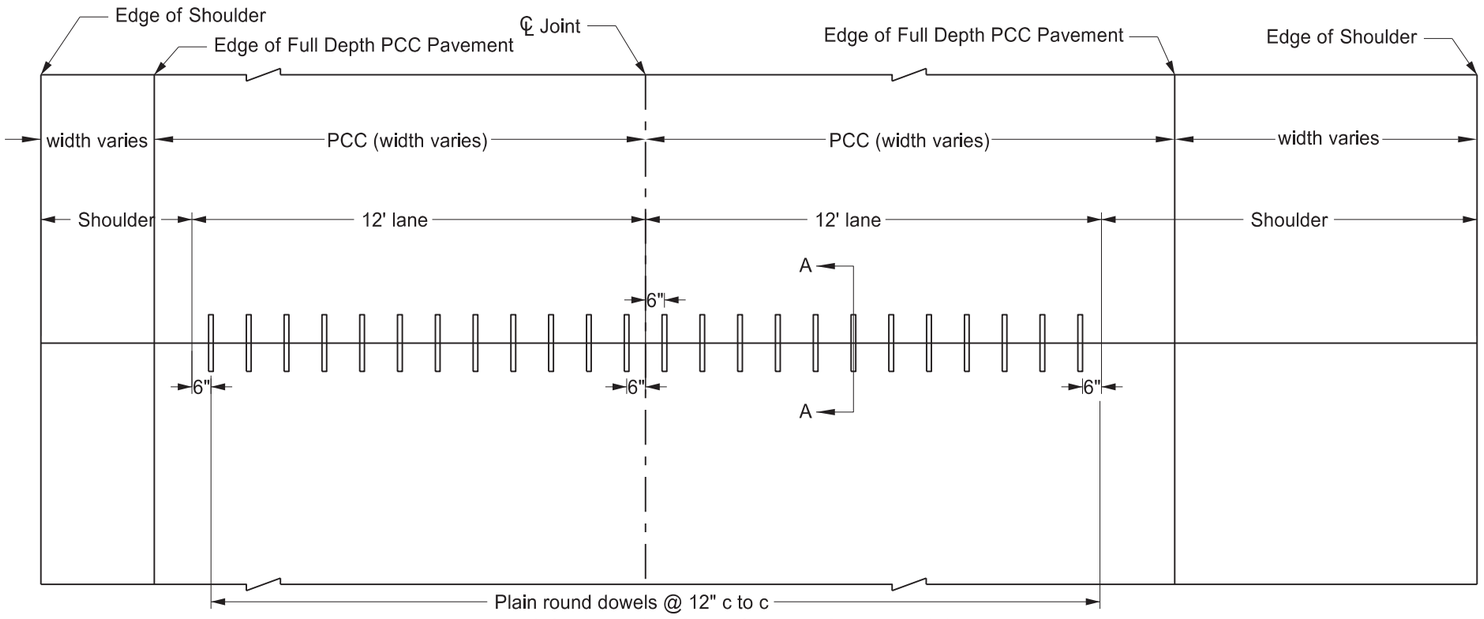
1. The joint seal details apply to both doweled and non-doweled (plain) transverse joints.
2. T = Thickness of pavement.
3. B = T/4 + ¼" for AE or non-dowelled concrete pavement or
   B = T/3 for AAE or dowelled concrete pavement



DETAIL "A"



SECTION A-A



CONTRACTION JOINT DOWEL ASSEMBLY
NON-INTERSTATE

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-15-10	
REVISIONS	
DATE	CHANGE
6/23/2014	Removed dowel size reference
3/16/2016	Revised Joint Details and notes
10/25/2019	Expanded Details for clarity
03/13/2025	Revised # of Dowels & Note 3.

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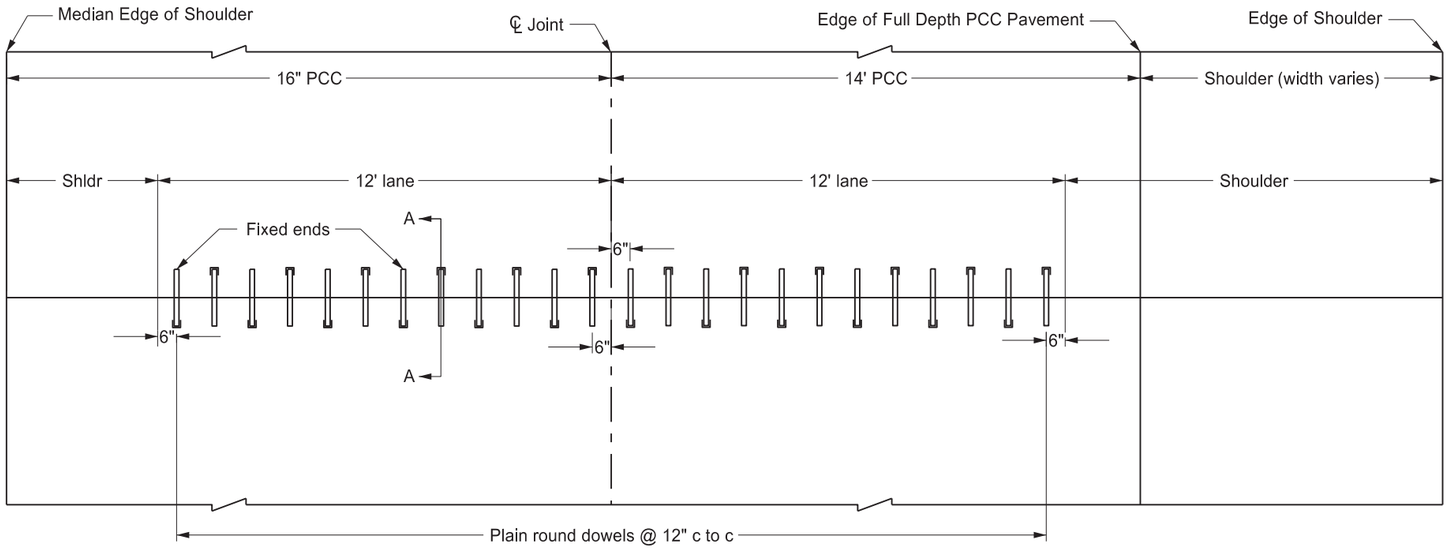
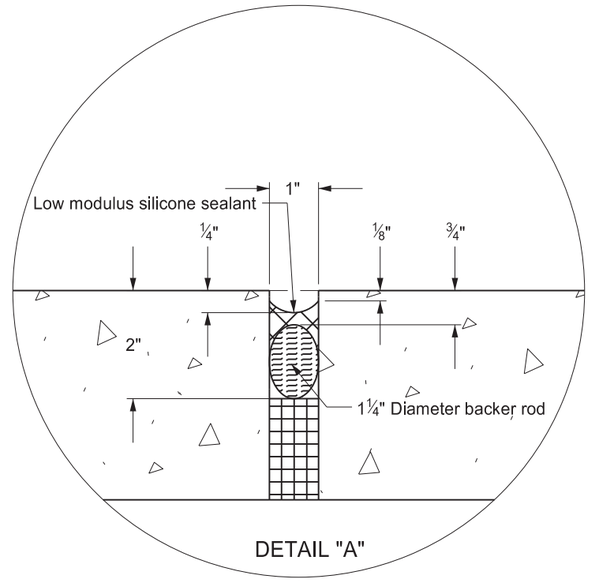
TRANSVERSE EXPANSION JOINT DETAIL

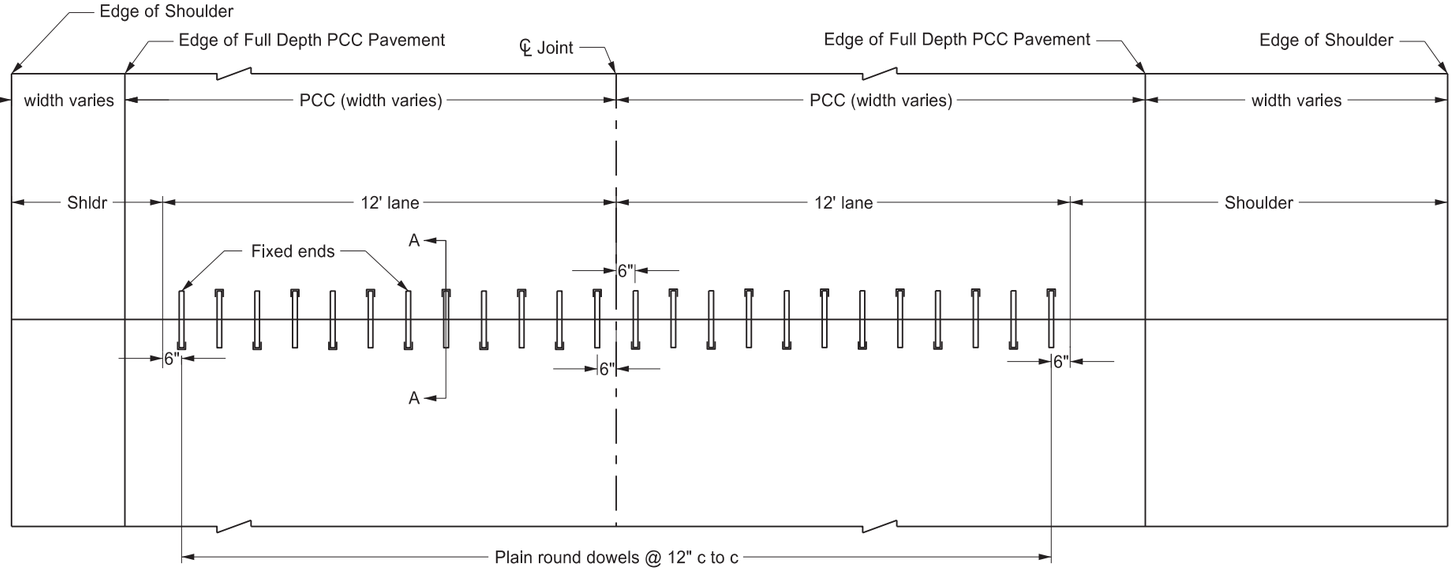
D-550-4



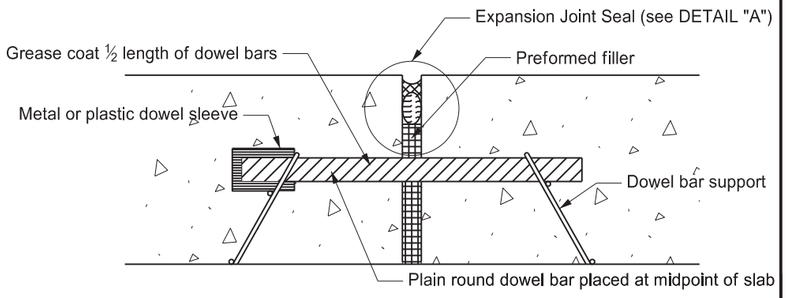
DOWELED EXPANSION JOINT ASSEMBLY
INTERSTATE



DETAIL "A"



DOWELED EXPANSION JOINT ASSEMBLY
NON-INTERSTATE



SECTION A-A

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-15-2010	
REVISIONS	
DATE	CHANGE
6/23/2014	Removed dowel bar sizes
10/25/2019	Expanded details for clarity
3/13/2025	Revised # of dowels.

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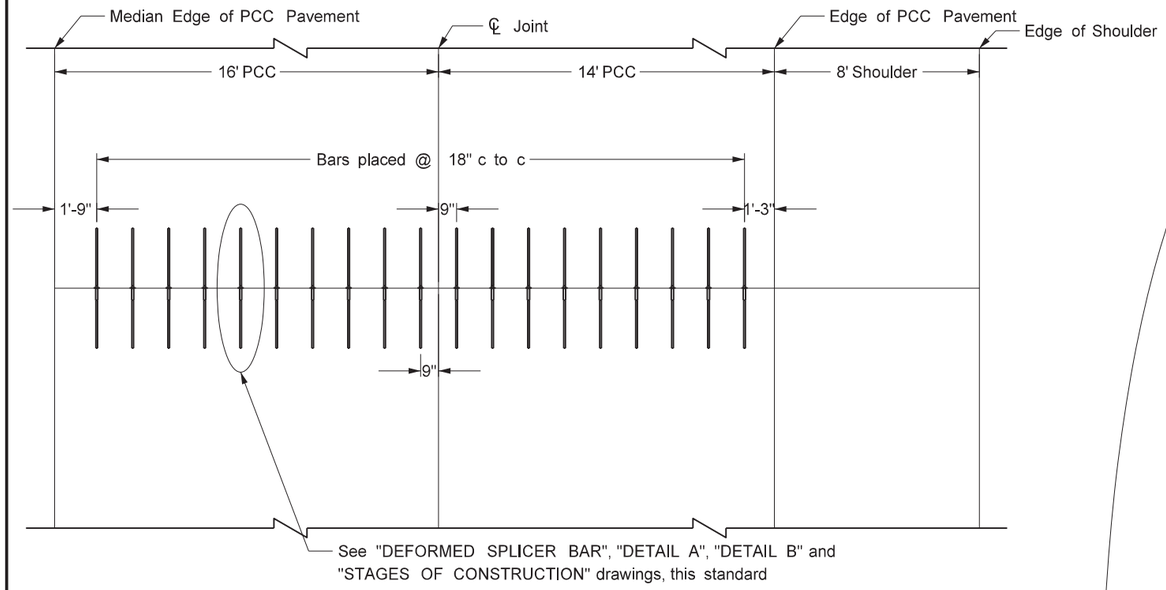
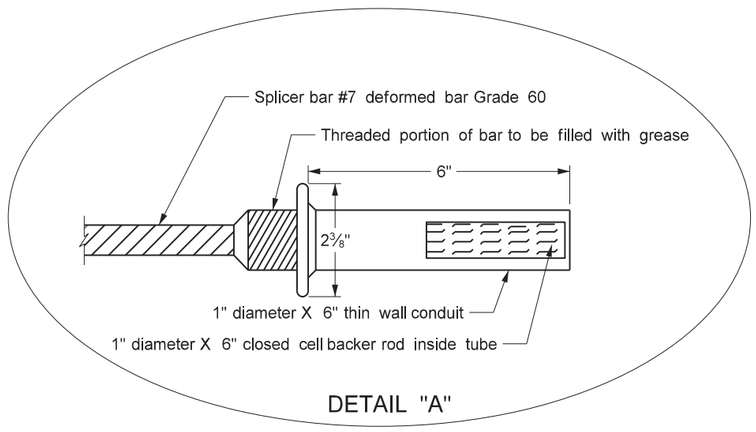
03/13/25

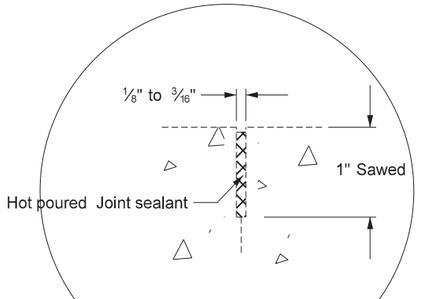
TRANSVERSE CONSTRUCTION JOINT



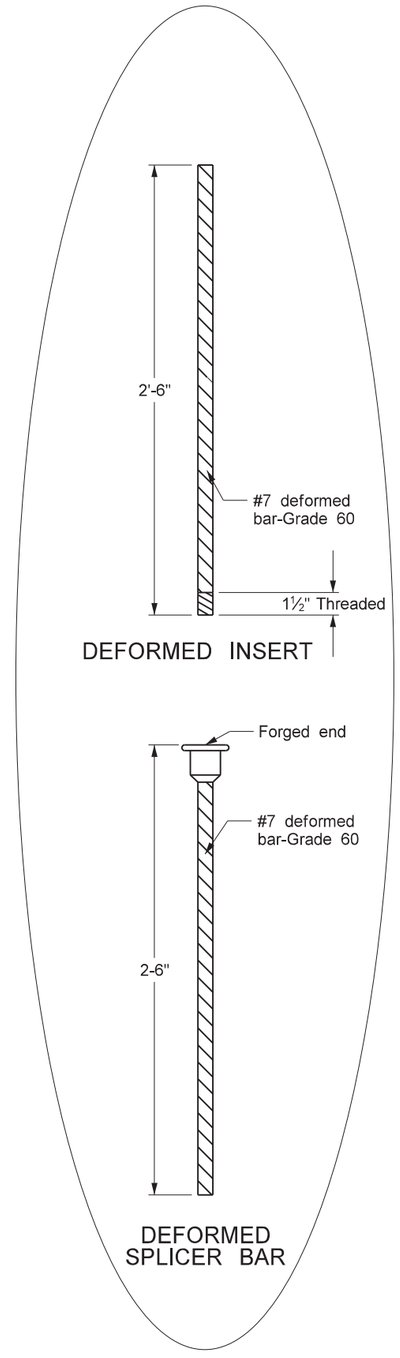
PLAN VIEW



DETAIL "A"



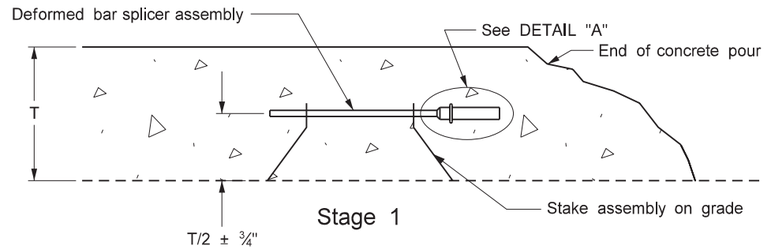
DETAIL "B"



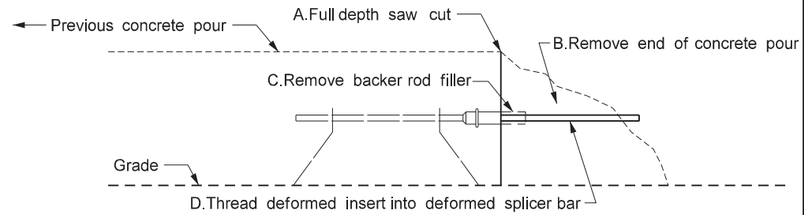
DEFORMED INSERT

DEFORMED SPLICER BAR

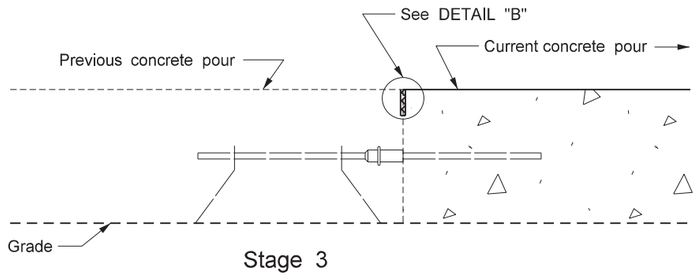
STAGES OF CONSTRUCTION



Stage 1



Stage 2



Stage 3

Notes

1. Saw and seal all construction joints.
2. Include all costs for transverse construction joints in the price bid for PCC pavement.
3. Do not saturate the subgrade during the sawing operation.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-15-2010	
REVISIONS	
DATE	CHANGE
3-16-16 8-27-19 8-09-24	Revised Joint Details & notes. New Design Engr PE Stamp. Electronic Stamp/Signature.

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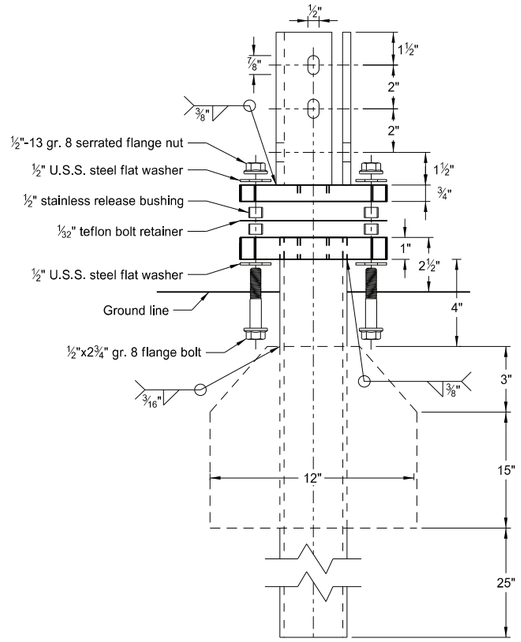
08/09/24

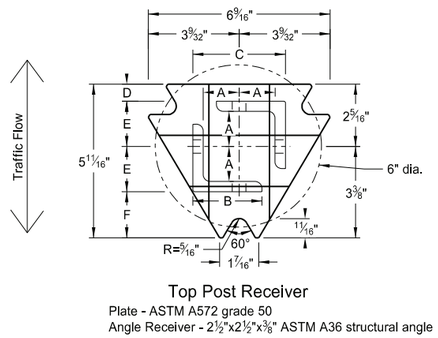
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-7

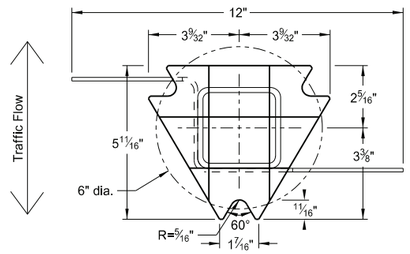


Multi-Directional
Slip Base Assembly

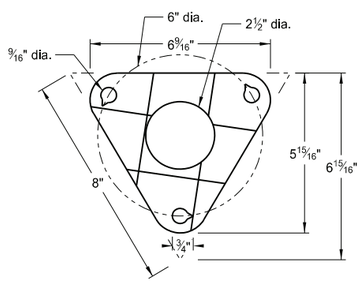
Perforated Tube



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



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.

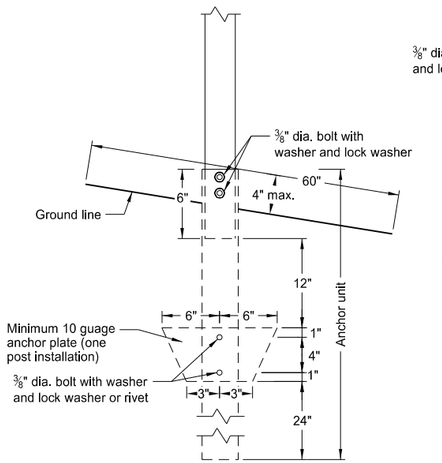
Telescoping Perforated Tube						
Number of Posts	Post Size in.	Wall Thick-ness Gauge	Sleeve Size in.	Wall Thick-ness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2¼
1	2¼	12			No	2½
1	2½	12			(A)	3
1	2½	10			Yes	
1	2¼	12	2	12	Yes	
1	2½	12	2¼	12	Yes	
2	2	12			No	2¼
2	2¼	12			No	2½
2	2½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

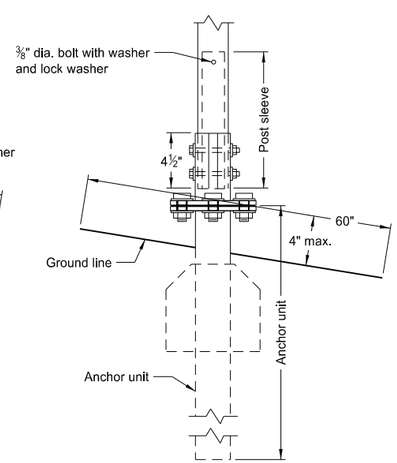
Top Post Receiver Data Table						
Square Post Sizes (B)	A	B	C	D	E	F
2 3/16"x10 ga.	1 9/64"	2½"	3 1/32"	25/32"	1 33/64"	1 7/8"
2½"x10 ga.	1 9/32"	2½"	3 5/16"	⅝"	1 21/32"	1¾"

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

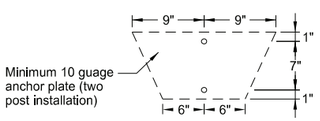
(B) For additional wind load, insert the 2 3/16"x10 ga. into 2½"x10 ga.



Anchor Unit and Post Assembly



Multi-Directional
Slip Base Anchor Unit
and Post Sleeve Assembly



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

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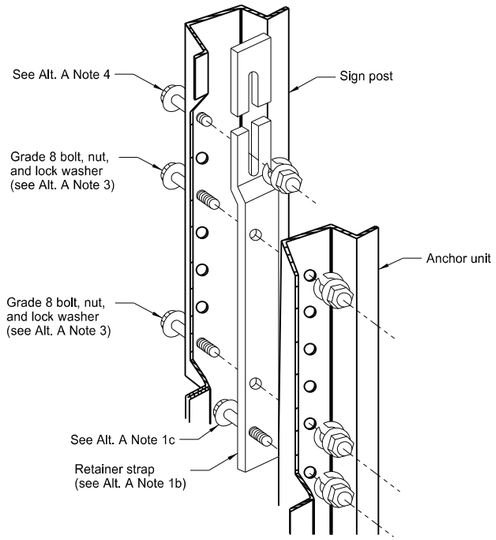
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

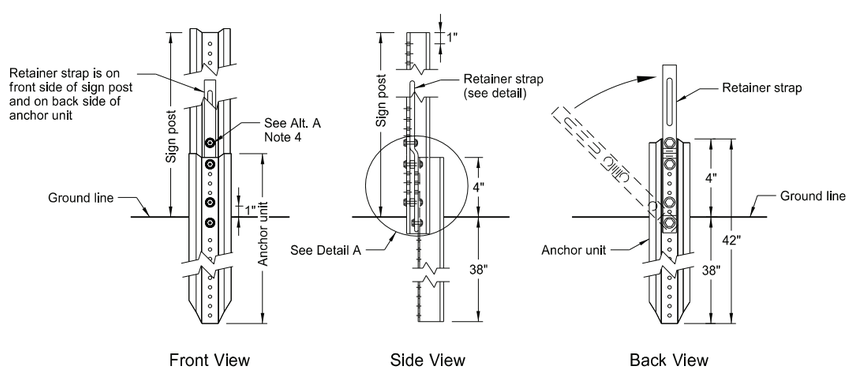
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

U-Channel Post



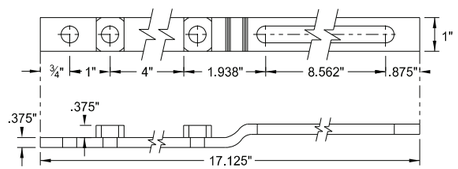
Detail A



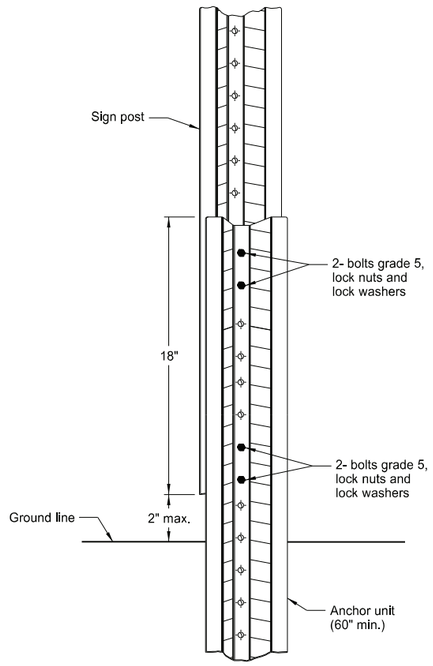
Front View | Side View | Back View

Breakaway U-Channel Detail Alternate A

Install a maximum of 2 posts within 7'.

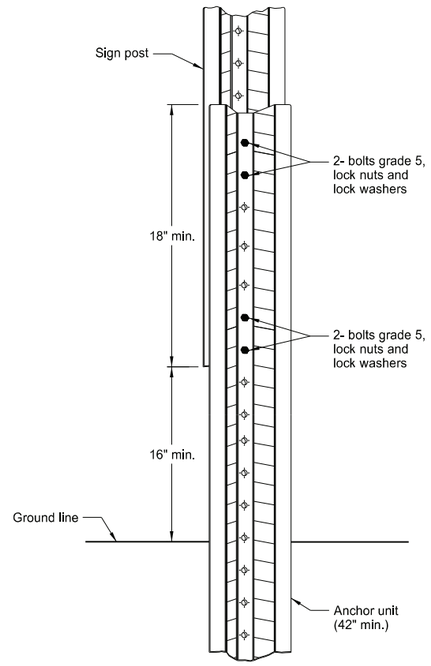


Retainer Strap Detail



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.

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

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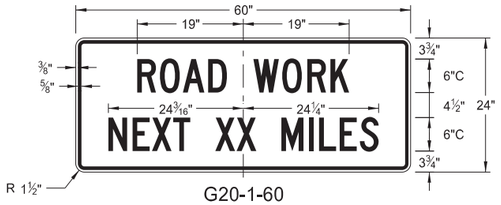
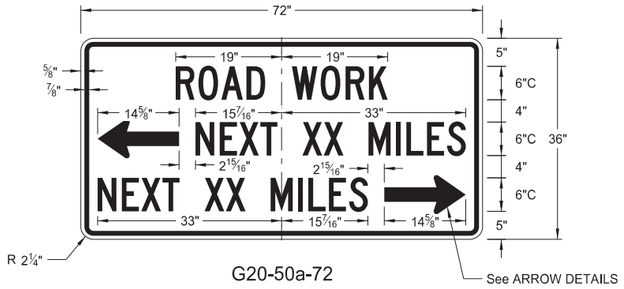
08/01/24

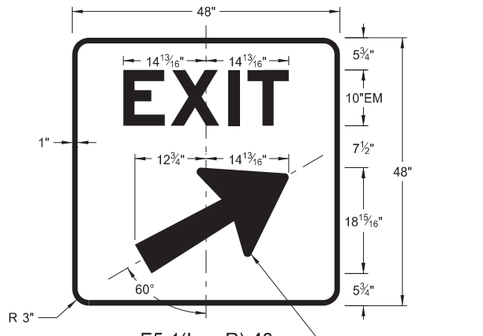
CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS



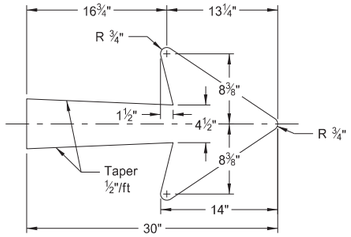
G20-1-60
Legend: black (non-refl)
Background: orange



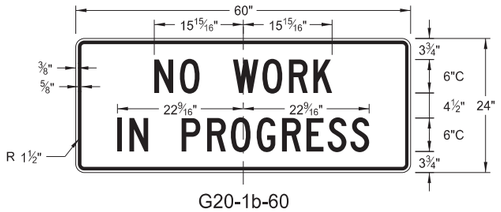
G20-50a-72
Legend: black (non-refl)
Background: orange



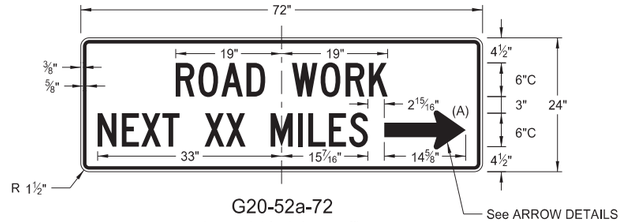
E5-1(L or R)-48
Legend: white
Background: green (orange optional)



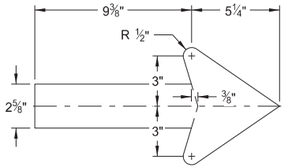
E5-1-48



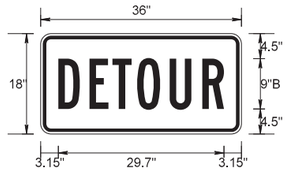
G20-1b-60
Legend: black (non-refl)
Background: orange



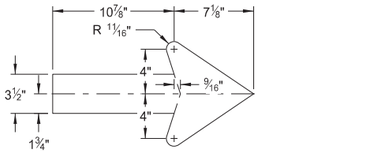
G20-52a-72
Legend: black (non-refl)
Background: orange



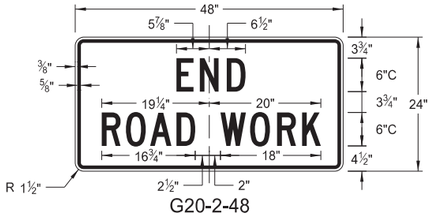
G20-50a-72
G20-52a-72



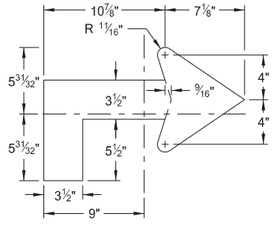
M4-8-36
Legend: black (non-refl)
Background: orange



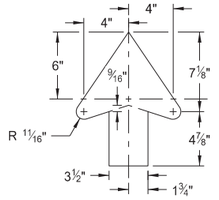
M4-9(L or R)-30
Right or Left



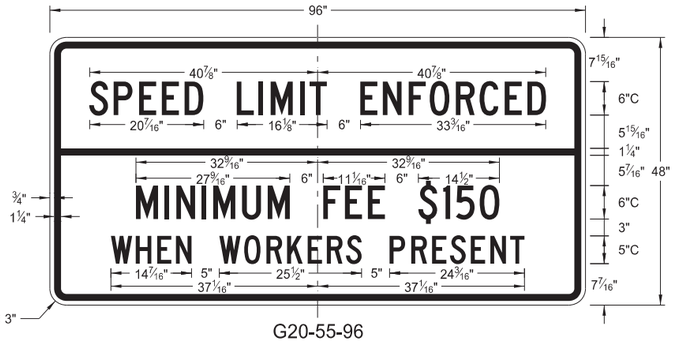
G20-2-48
Legend: black (non-refl)
Background: orange



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

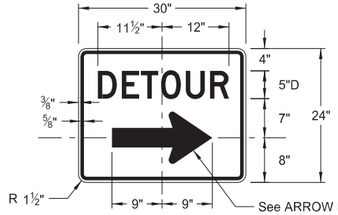


M4-9-30
Straight



G20-55-96
Legend: black (non-refl)
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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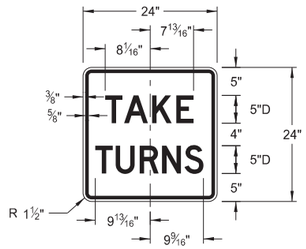
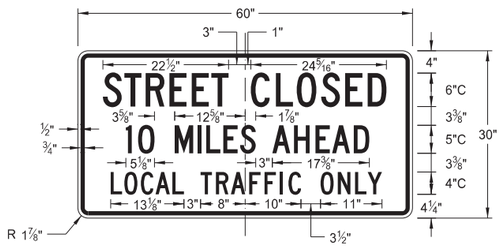
06/30/25
ENGINEER
NORTH DAKOTA

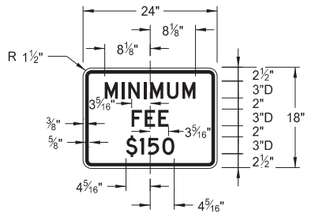
CONSTRUCTION SIGN DETAILS
REGULATORY SIGNS



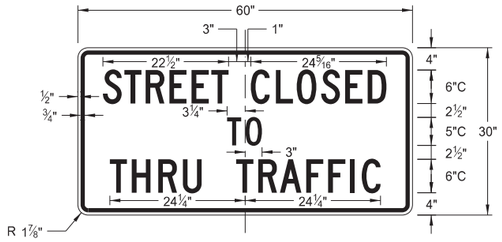
R1-50P-24
Legend: black (non-refl)
Background: white



R11-3c-60
Legend: black (non-refl)
Background: white



R2-1aP-24
Legend: black (non-refl)
Background: white



R11-4a-60
Legend: black (non-refl)
Background: white

R11-2a-48
Legend: black (non-refl)
Background: white

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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06/30/25
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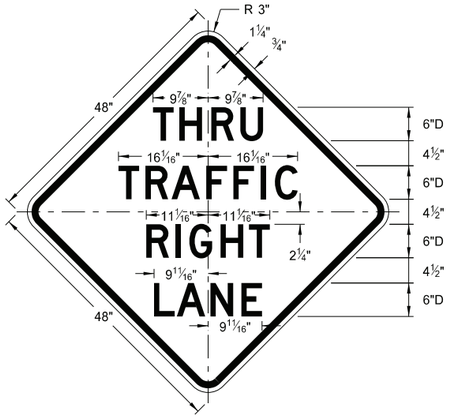
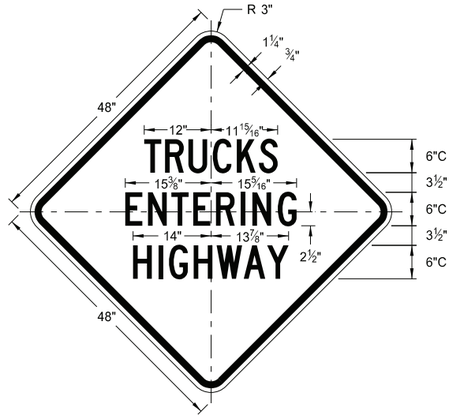
NORTH DAKOTA

CONSTRUCTION SIGN DETAILS
WARNING SIGNS

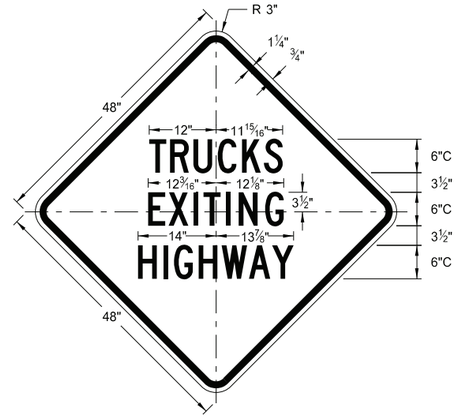
D-704-11



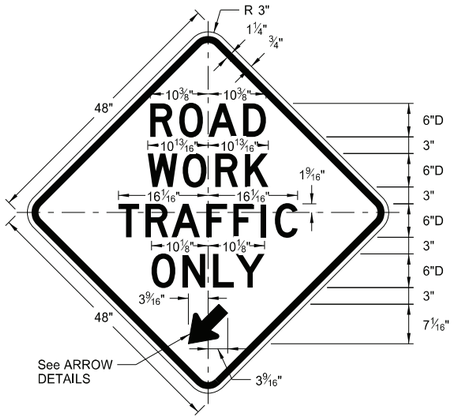
W5-8-48
Legend: black (non-refl)
Background: orange



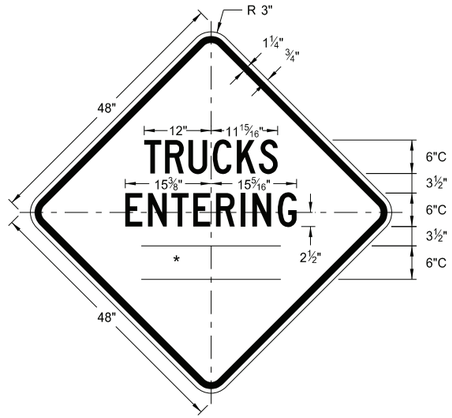
W8-53-48
Legend: black (non-refl)
Background: orange



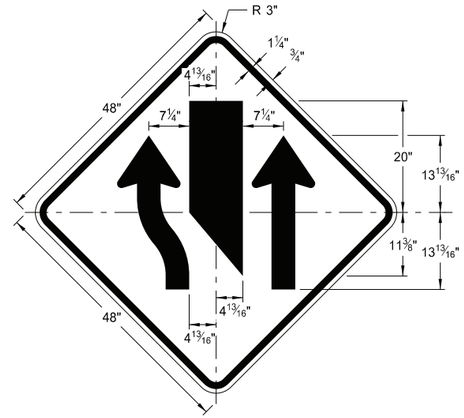
W8-56-48
Legend: black (non-refl)
Background: orange



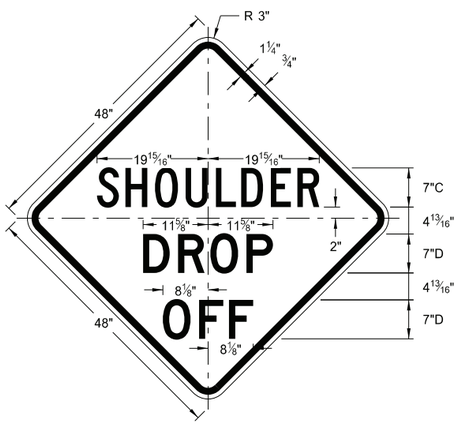
W5-9-48
Legend; black (non-refl)
Background: orange



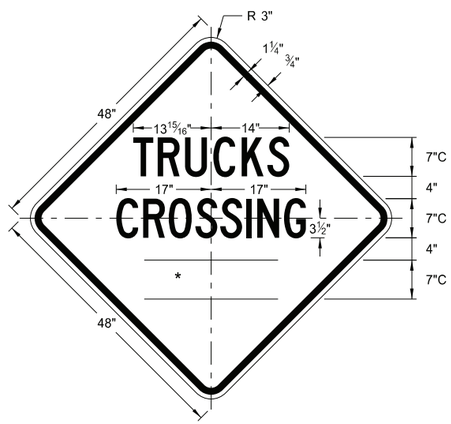
W8-54-48
Legend; black (non-refl)
Background: orange



W9-3a-48
Legend; black (non-refl)
Background: orange



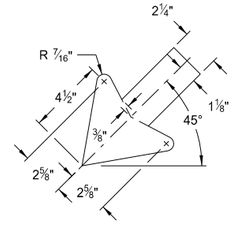
W8-9a-48
Legend: black (non-refl)
Background: orange



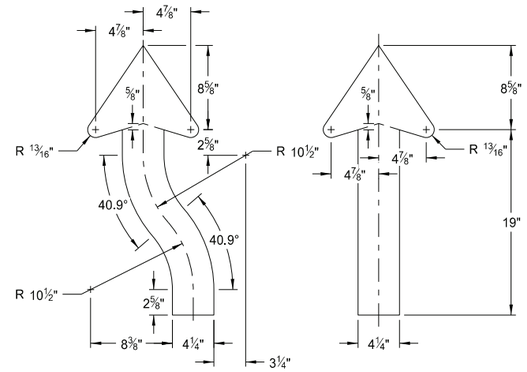
W8-55-48
Legend: black (non-refl)
Background: orange

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



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

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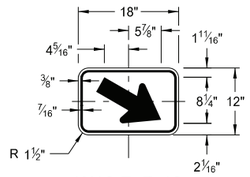
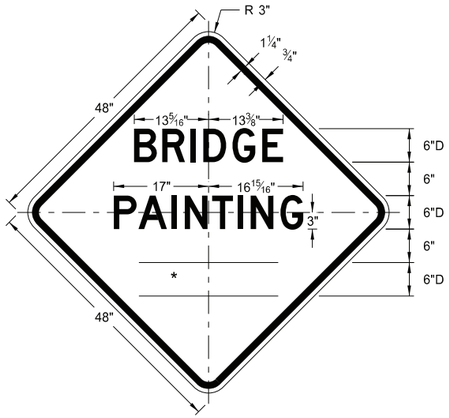
08/01/24

CONSTRUCTION SIGN DETAILS
WARNING SIGNS

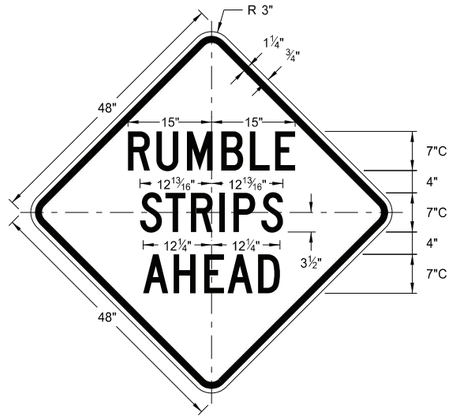
D-704-11A



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



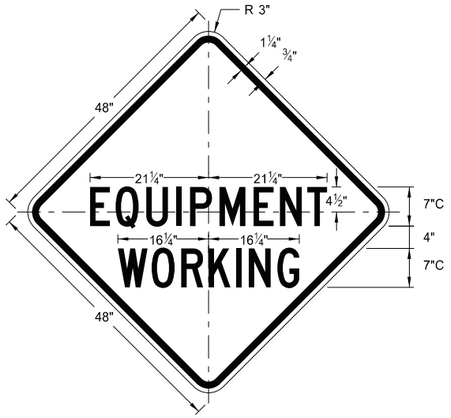
W21-50-48
Legend: black (non-refl)
Background: orange



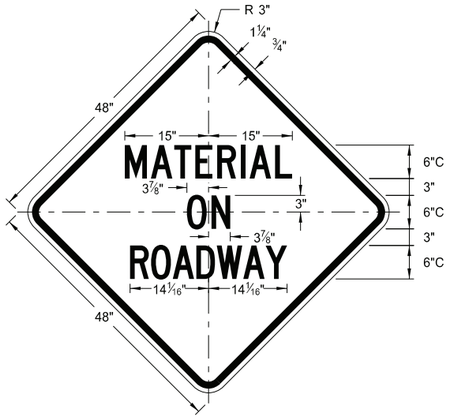
W21-53-48
Legend: black (non-refl)
Background: orange

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

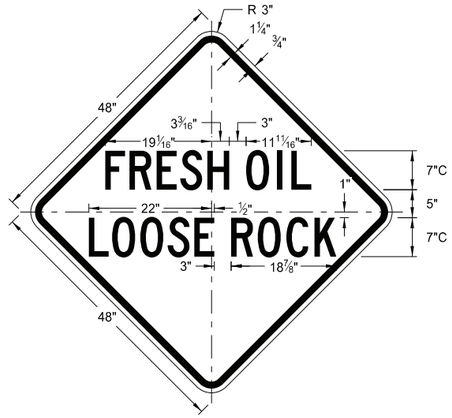
* DISTANCE MESSAGES



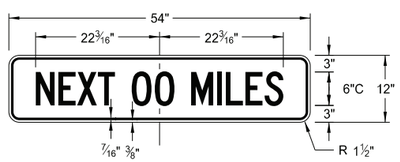
W20-51-48
Legend: black (non-refl)
Background: orange



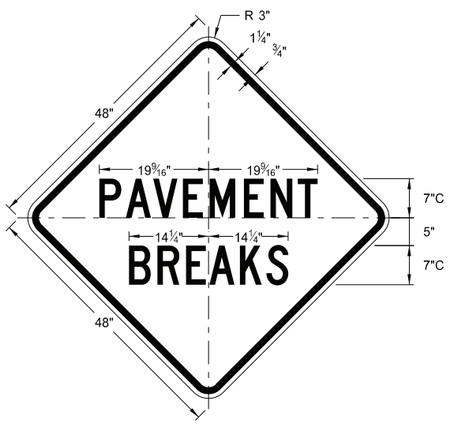
W21-51-48
Legend: black (non-refl)
Background: orange



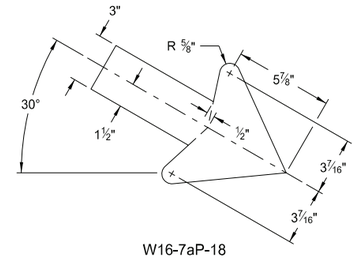
W22-8-48
Legend: black (non-refl)
Background: orange



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.

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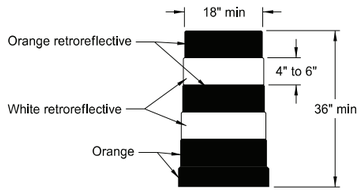
08/01/24

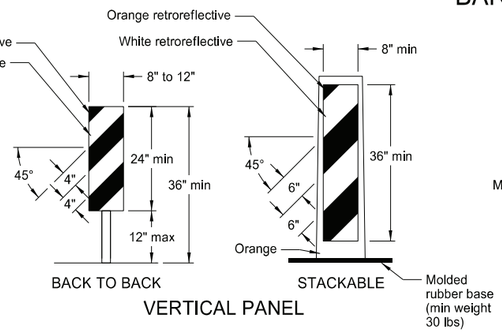
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



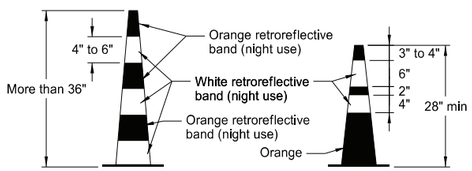
DELINEATOR DRUM

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.



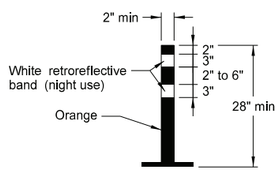
VERTICAL PANEL

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.



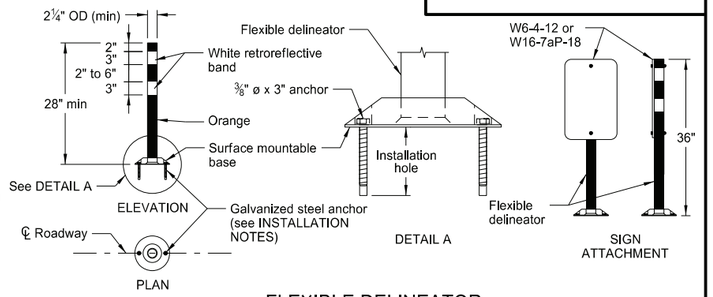
TRAFFIC CONE

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

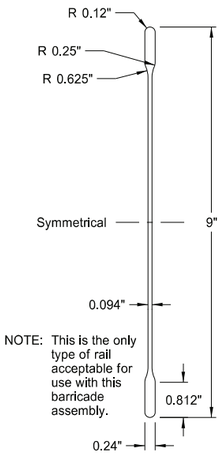
Provide retroreflectorization of tubular markers more than 42" in height by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



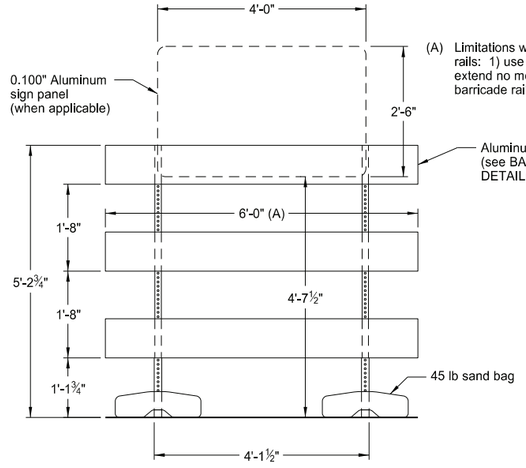
FLEXIBLE DELINEATOR

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.

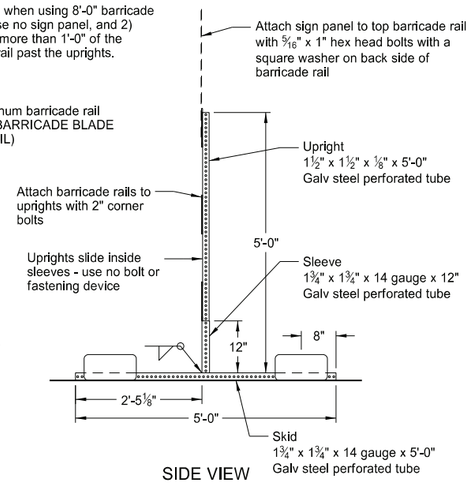


BARRICADE BLADE DETAIL



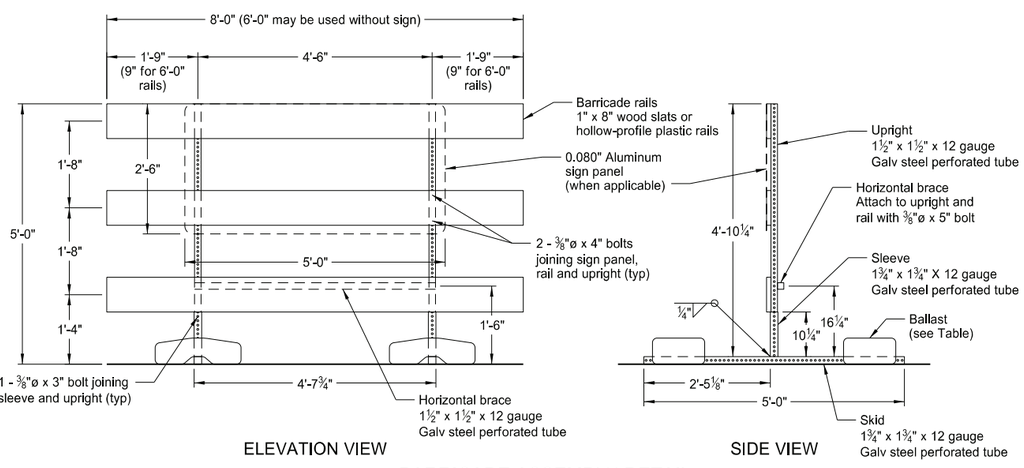
ELEVATION VIEW

(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.



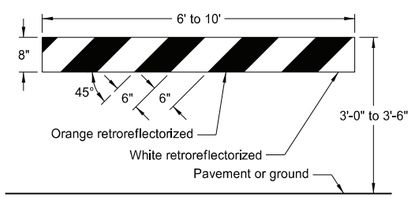
SIDE VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

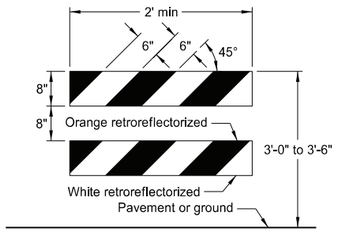


BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

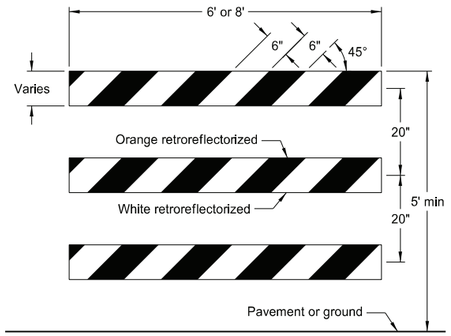
NOTE: For barricade markings use alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Place retroreflective sheeting on both sides of the rails with a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the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



TYPE I BARRICADE

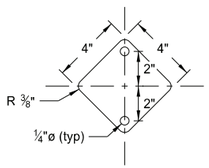


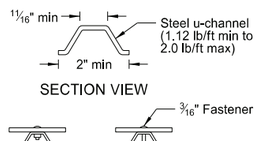
TYPE II BARRICADE

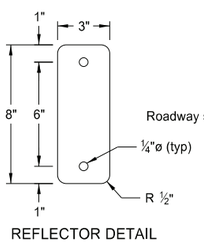


TYPE III BARRICADE

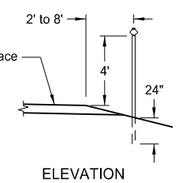
BARRICADE RAIL DETAILS







REFLECTOR DETAIL



ELEVATION

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

KIRK J. HOFF
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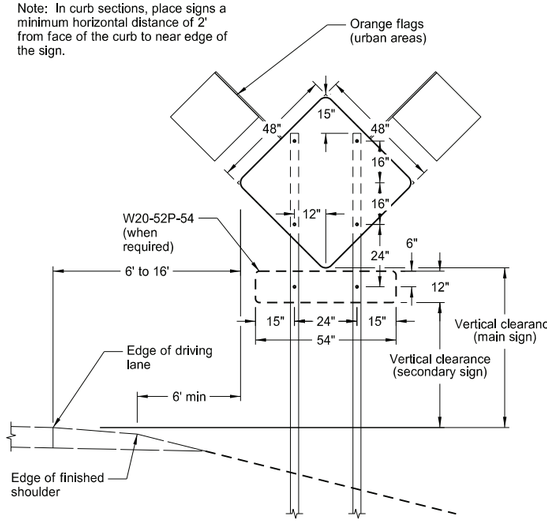
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

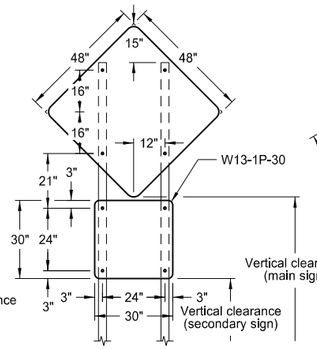
CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

D-704-14

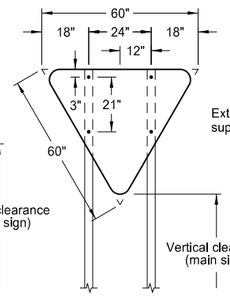
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



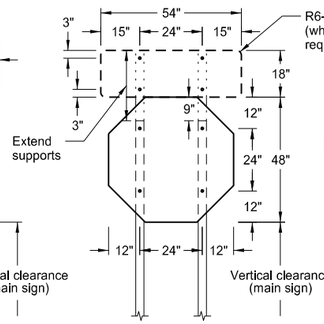
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



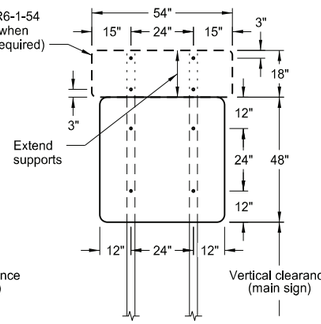
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



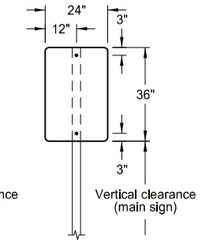
R1-2-60 - YIELD SIGN



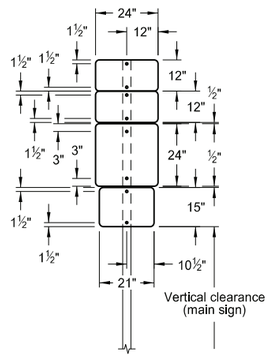
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



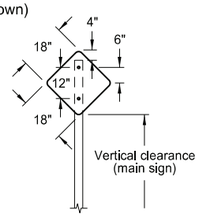
48" x 48" SIGN
(with R6-1-54 sign as required)



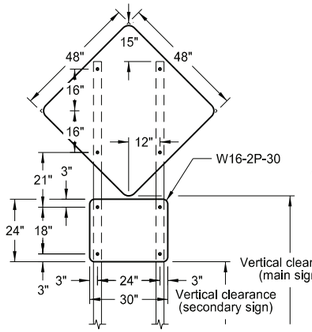
24" x 36" SIGN



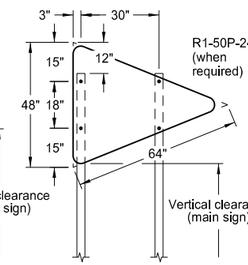
24" x 24"
ROUTE MARKER
ASSEMBLY



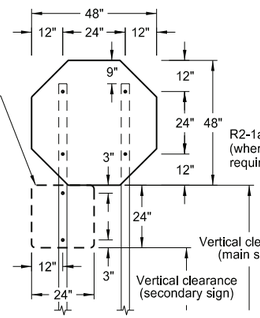
18" x 18"
DIAMOND SIGN



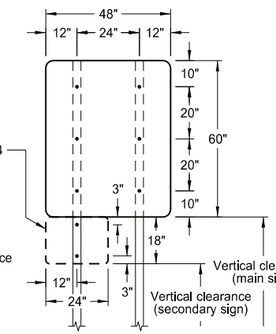
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



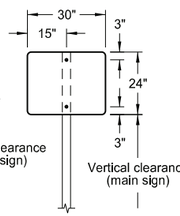
W14-3-64 - PENNANT SIGN



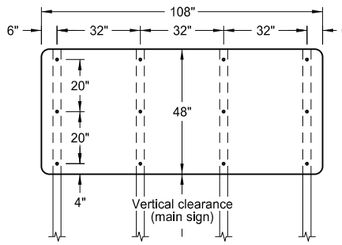
R1-1-48 - STOP SIGN
(with R1-50P-24 sign as required)



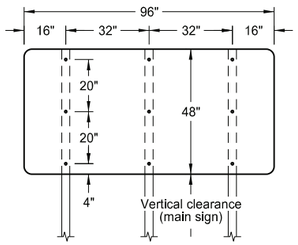
48" x 48" SIGN
(with R2-1aP-24 sign as required)



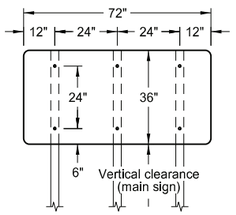
30" x 24" SIGN



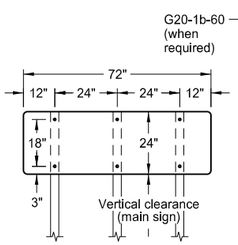
108" x 48" SIGN



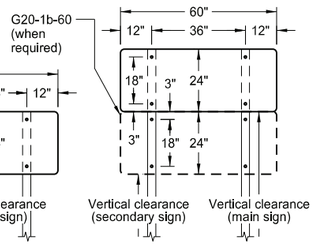
96" x 48" SIGN



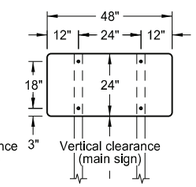
72" x 36" SIGN



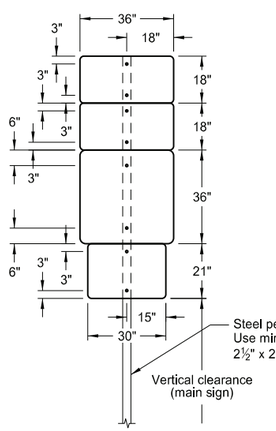
72" x 24" SIGN



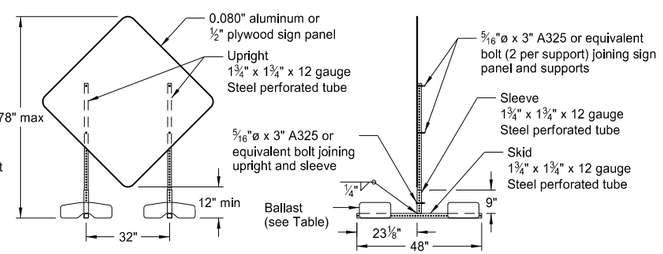
60" x 24" SIGN



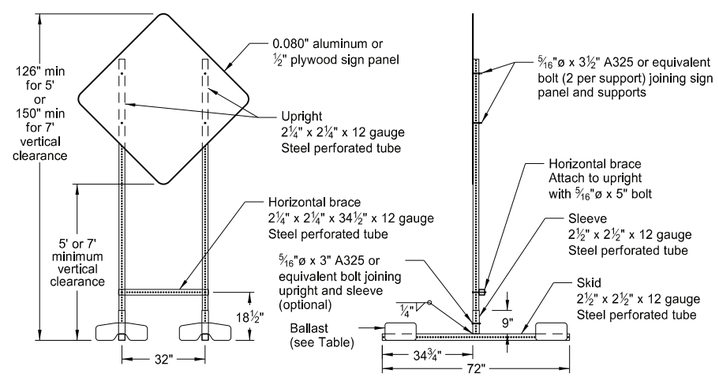
48" x 24" SIGN



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

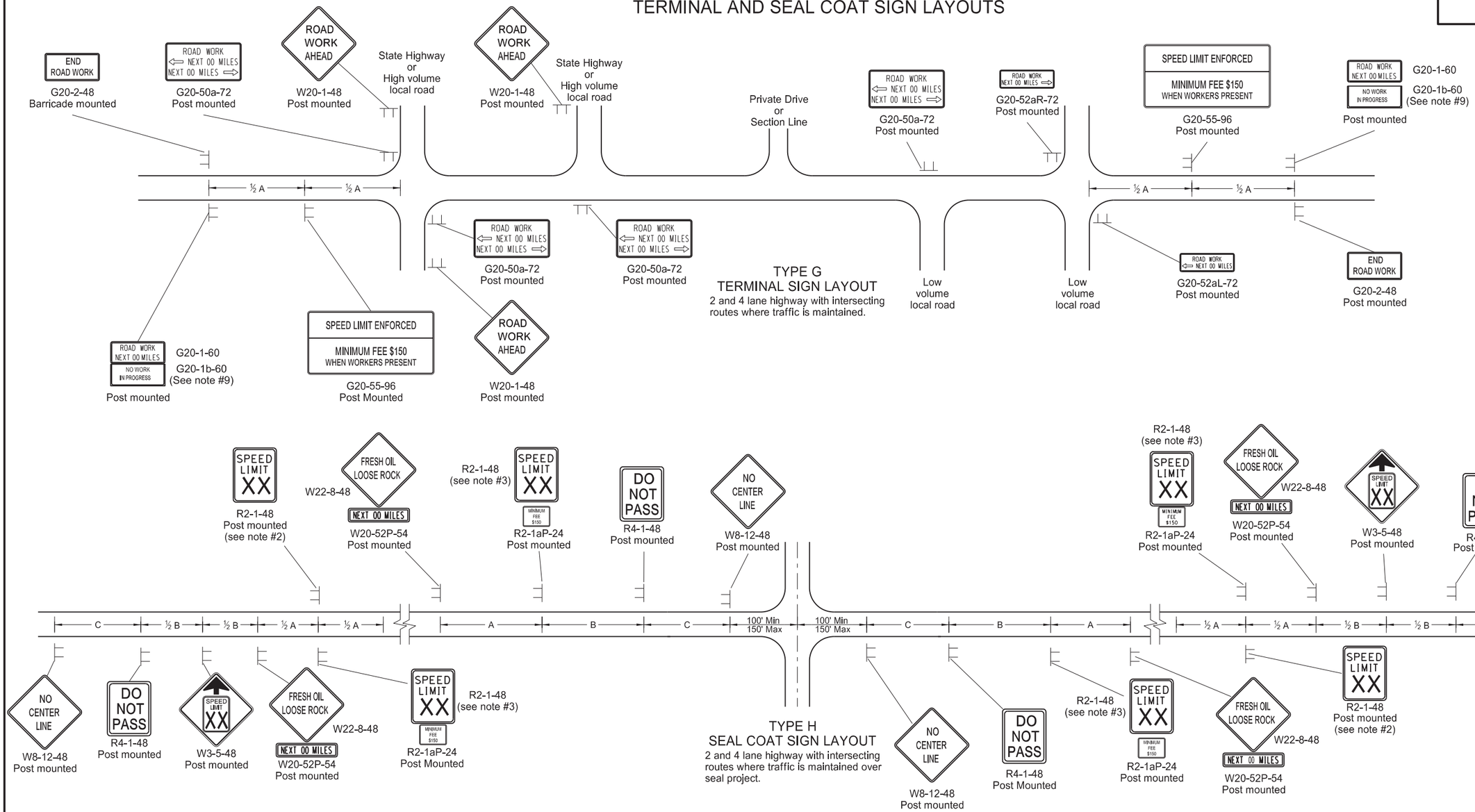
DATE	CHANGE
11-14-13	Revised Note 6
9-27-17	Updated to active voice
11-01-19	Revised 60"x24" sign detail
8-01-24	Electronic Stamp/Signature

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

08/01/24

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

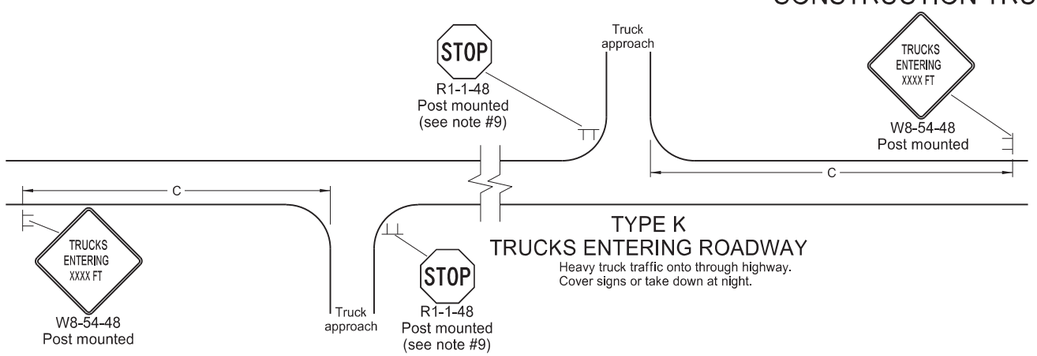
DATE	CHANGE
08-17-17	Updated notes & sign numbers
11-01-19	Updated note & sign
12-08-21	Switched order of Road Work and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes

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

CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

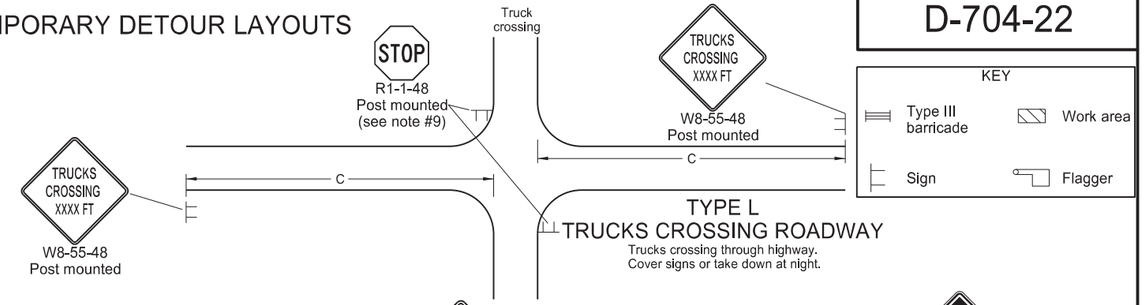
D-704-22

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



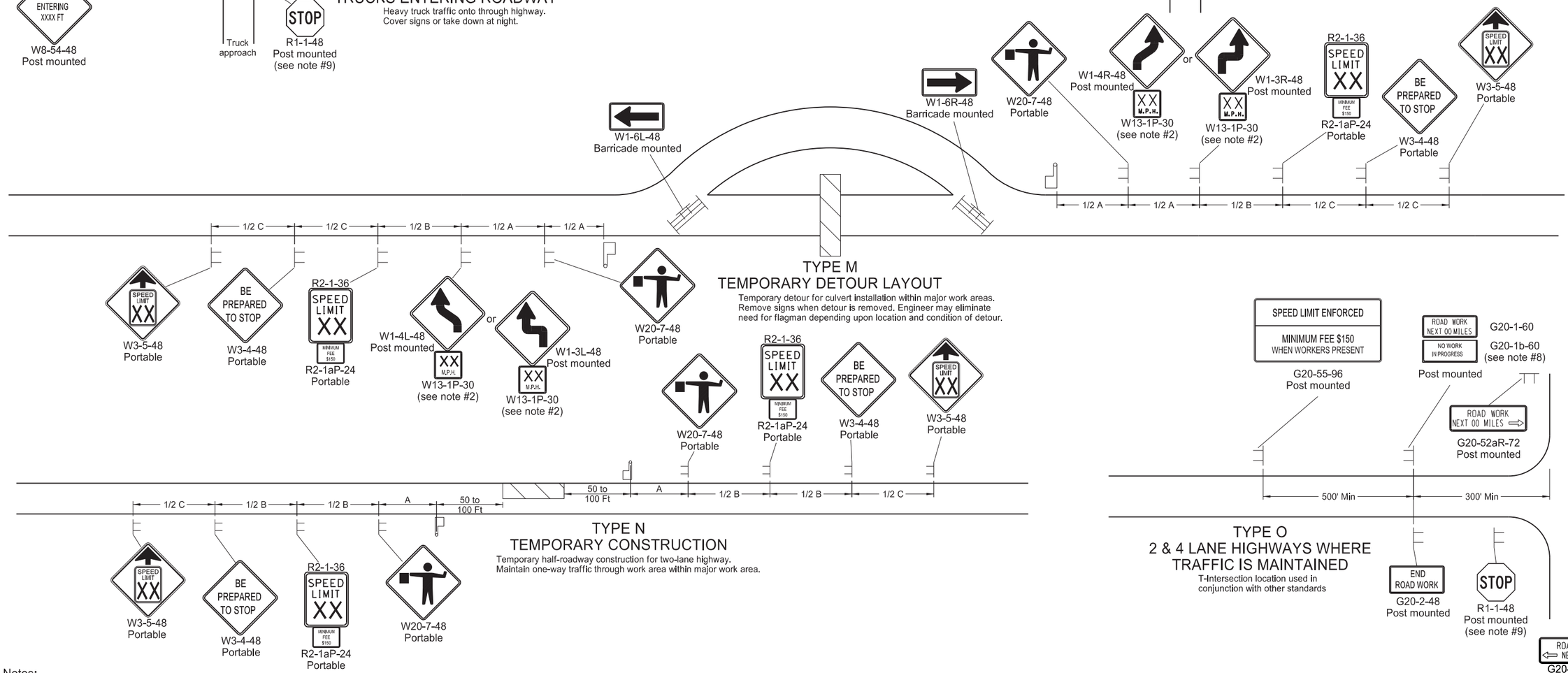
TYPE K
TRUCKS ENTERING ROADWAY

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.

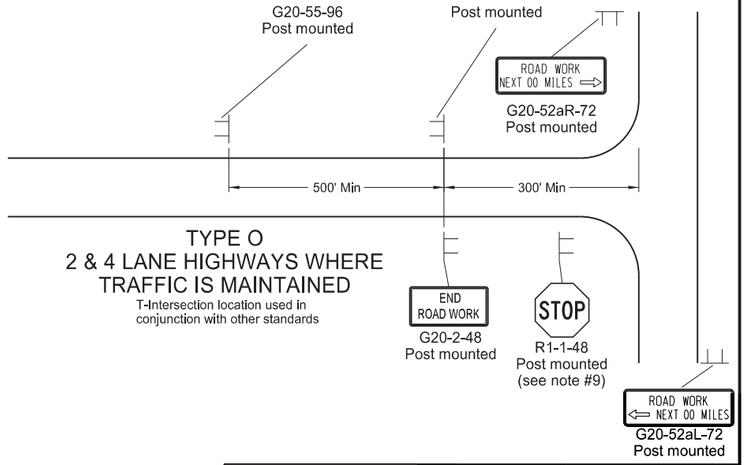


TYPE M
TEMPORARY DETOUR LAYOUT

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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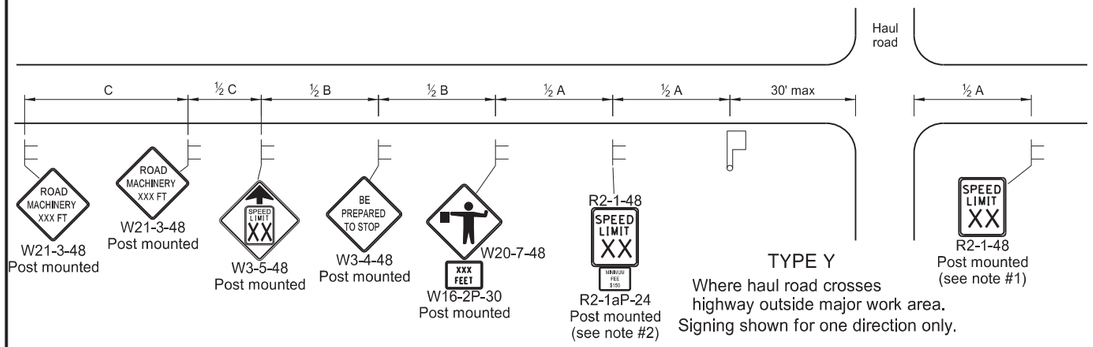
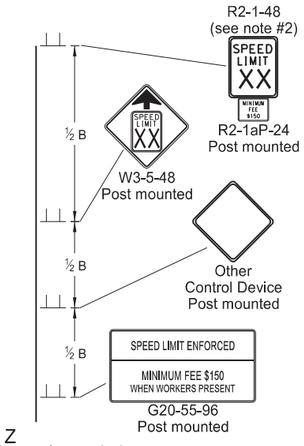
REGISTERED
PROFESSIONAL
PE-4683
06/30/25
ENGINEER
NORTH DAKOTA

MISCELLANEOUS SIGN LAYOUTS

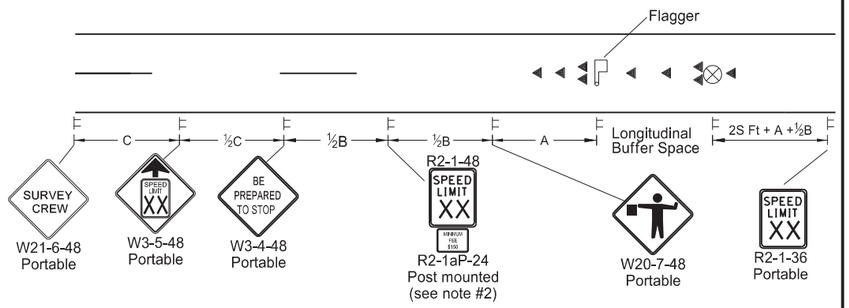
D-704-26



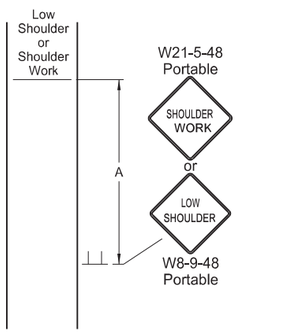
TYPE Y
Where haul road crosses highway outside major work area.
Signing shown for one direction only.



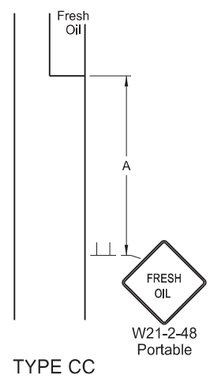
TYPE Z
Where speed zone is needed
Signing shown for one direction only.



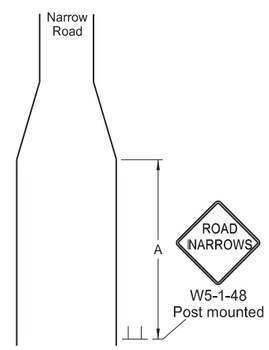
TYPE AA
Where survey crew is used
Signing shown for one direction only.



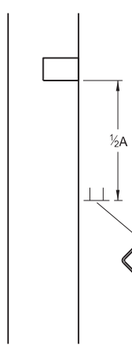
TYPE BB
Within major work area where sign conditions exist



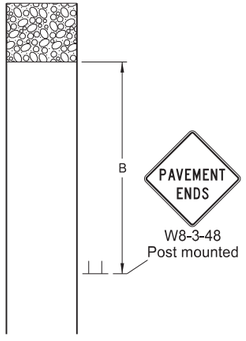
TYPE CC
Where sign conditions exist



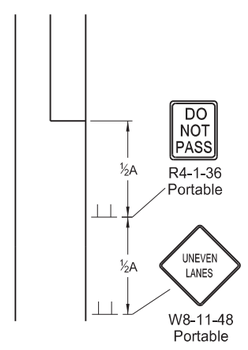
TYPE DD
Where sign conditions exist



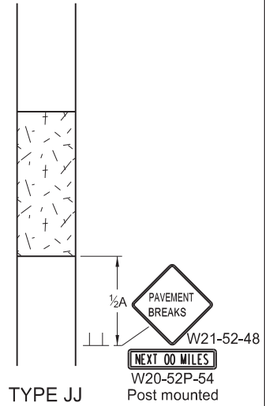
TYPE EE
Where sign conditions exist



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

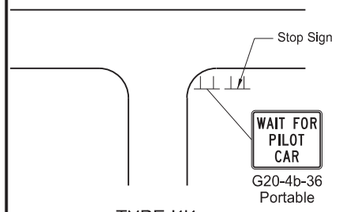


TYPE GG
Where elevation difference exists between lanes



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

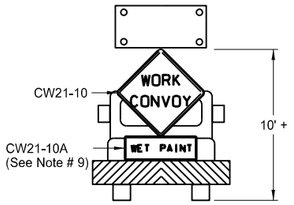
REVISIONS

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

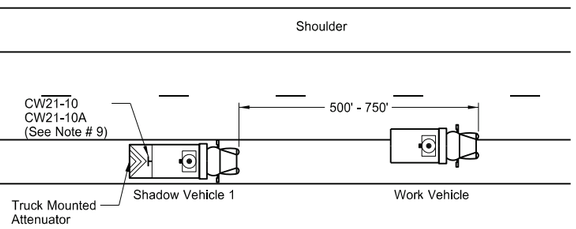
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 06/30/25 ENGINEER NORTH DAKOTA

MOBILE OPERATION
(PAVEMENT MARKING)

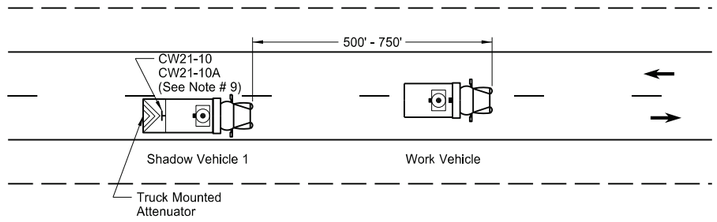
D-704-27



Typical Shadow Vehicle 1
Two-Way Roaday

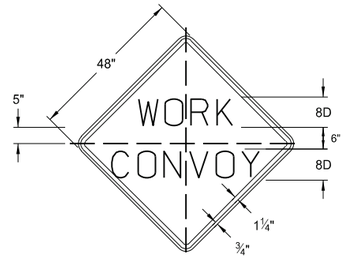


Two-Way Roadway with Paved Shoulders

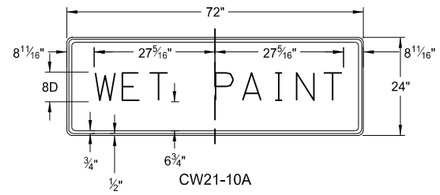


Two-Way Roadway without Paved Shoulders

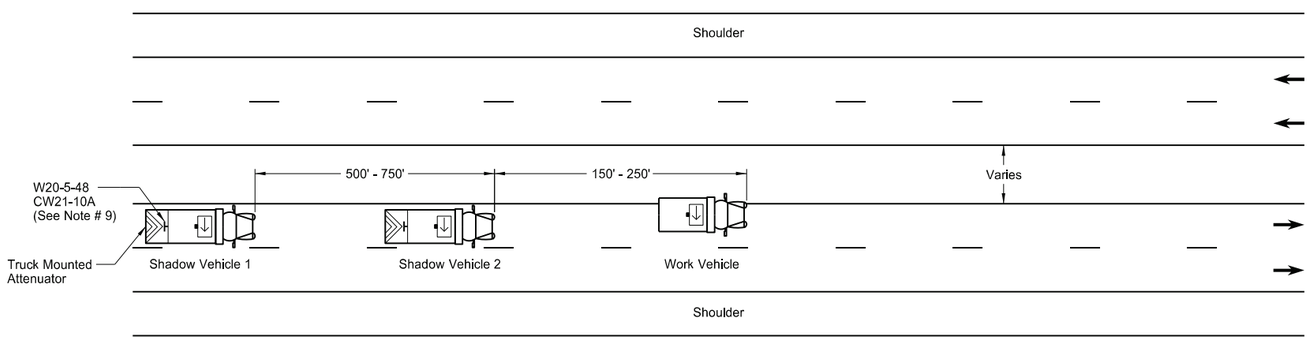
Sign Details



CW21-10

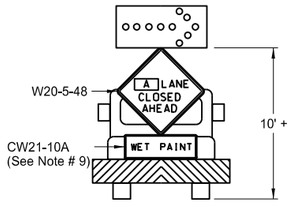


CW21-10A



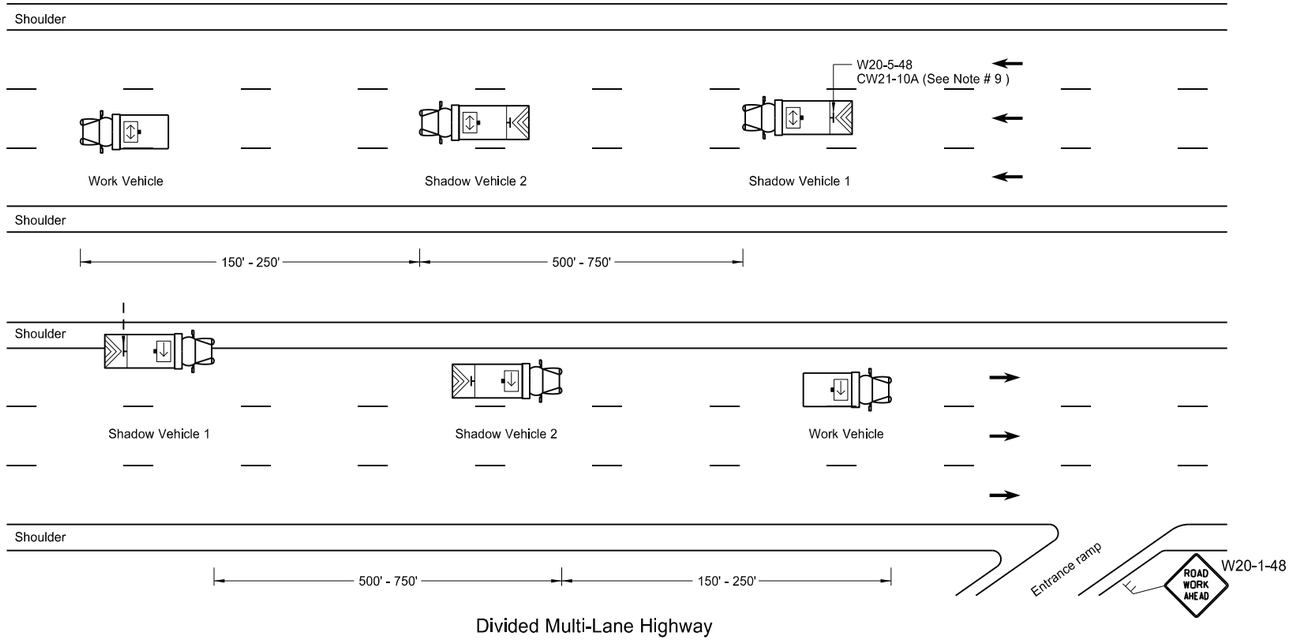
Undivided Multi-Lane Roadway

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.

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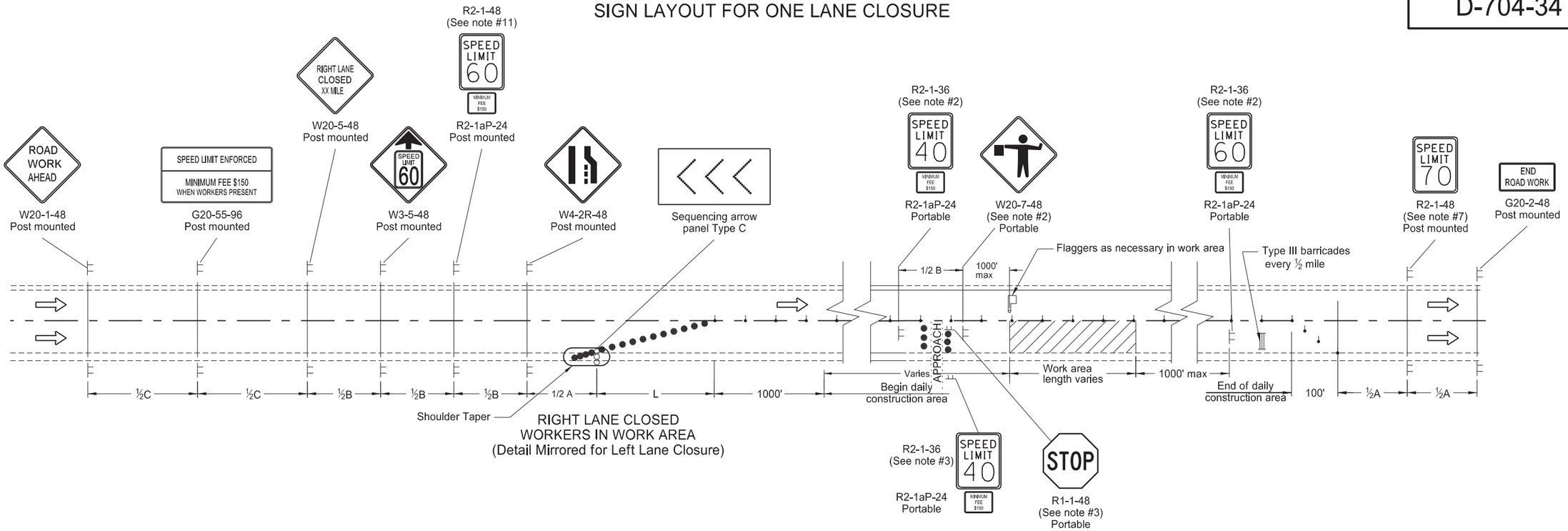
NORTH DAKOTA

08/02/24

SIGN LAYOUT FOR ONE LANE CLOSURE

D-704-34



Notes:

1. Install advance signs for flagging when flaggers are flagging.
2. Move the advanced flagger sign and speed limit signs as the work area moves through the construction zone. When the work area is not visible from the flagger, move the flagger station so the work area is visible. Place the 40 mph speed limit sign at ½A in advance of the flagger sign and move the 60 mph speed limit sign. Cover or remove the 40 mph speed limit and the Minimum Fee $150 signs upon completion of the work day or when workers are not present. Determine the exact speed limit in the field, dependent on location and conditions.
3. Approaches: When the work area encompasses an approach, install a 40 mph speed limit sign to control the approach. Cover the existing stop sign and install a new portable stop sign when the approach is on the side of the lane closure. Remove the approach speed limit sign once the main line 40 mph speed zone is moved past the approach.
4. Variables:
   S=Numerical value of speed limit or 85th percentile
   W=The width of taper.
   L=Minimum length of taper, or SxW for freeways, expressways, and all other roads with speeds of 45 mph or greater, or
   (WxSxS)/60 for urban, residential, and other streets with speeds of 40 mph or less.
5. Space delineator drums for tapering traffic at the dimension "S". Space tubular markers used for tangents at 2 times dimension "S".
6. 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 the roadway surface.
   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).
7. Re-establish the speed limit. Determine the exact speed limit in the field, dependent on location and conditions.
8. Cover existing speed limit signs within a reduced speed zone.
9. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the diamond sign, and at such a distance above the edge that the flag does not touch the sign when limp.
10. Determine the reduced speed limit dependent on the in place speed limit before construction. Where speed limits are to be reduced more than 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.
11. As an option use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
12. 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.

KEY

Type I barricade	Work area
Type II barricade	Flagger
Type III barricade	Sequencing arrow panel
Sign	Tubular markers
Delineator drum	

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

9-26-2012

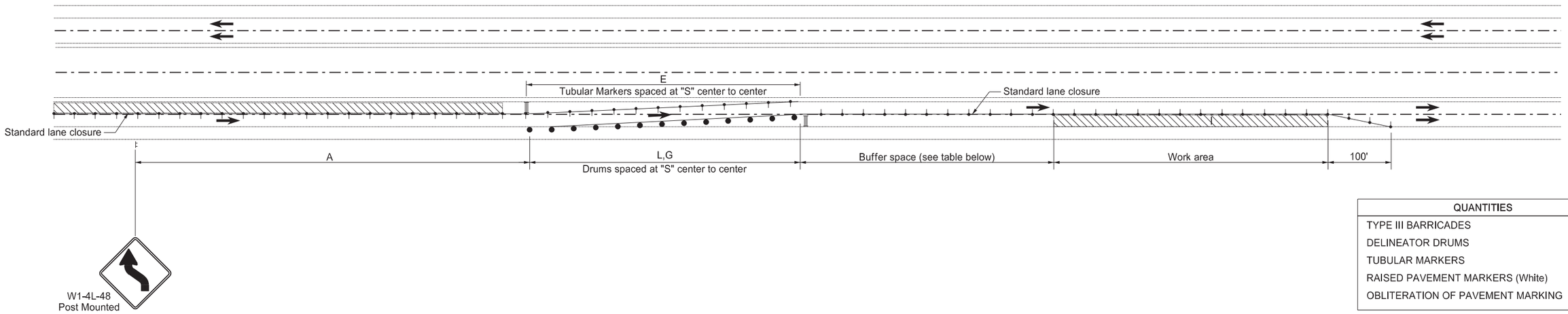
REVISIONS

DATE	CHANGE
03-15-16	Removed Do Not Pass signs & updated notes
08-17-17	Updated notes & sign numbers & moved Speed Limit signs
11-01-19	Removed shldr taper details & revised tubular mkr symbol
12-08-21	Switched order of Road Work and Spd Limit Enforced, removed table, & 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

TRAFFIC CONTROL SYSTEM
LANE SHIFT BETWEEN A LANE CLOSURE AND AN OPPOSITE LANE CLOSURE

D-704-34A



QUANTITIES	
TYPE III BARRICADES	2 Each
DELINEATOR DRUMS	13 Each
TUBULAR MARKERS	13 Each
RAISED PAVEMENT MARKERS (White)	Varies
OBLITERATION OF PAVEMENT MARKING	Varies

KEY
- Work area
- Type III barricade
- Traffic Direction
- Delineator drum
- Tublar markers
- Sign

LEGEND
E Obliteration of pavement marking (10' line, 30' skip centerline)
G Raised pavement markers (white) 5' ctrs.

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.

Notes
1. Variables
   S = Numerical value of posted speed limit, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.
   W = Width of offset in feet.
   L = Taper length in feet. Speeds 40 mph or less $L=WS^2/60$. Speeds 45 mph or greater $L= WS$.
2. Place signs and barricade on roadway on moveable assemblies.
3. Cover existing speed limit signs within reduced speed zones.
4. Upon approval, the Engineer will measure obliterated or covered pavement marking as Obliteration of Pavement Marking.
5. As an option, use portable sign supports in lieu of post mounted sign in accordance with NDDOT Standard Drawing D-704-14.
6. Place "Minimum Fee $150" signs below speed limit signs when placing traffic control devices to reduce speed.
7. When duration of work is 14 days or less, obliteration of pavement marking (10' line, 30' skip, centerline) and raised pavement markers are not required.

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
10-26-2012

REVISIONS

DATE	CHANGE
09-27-17	Updated to active voice
11-01-19	Clarified work zone
08-02-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

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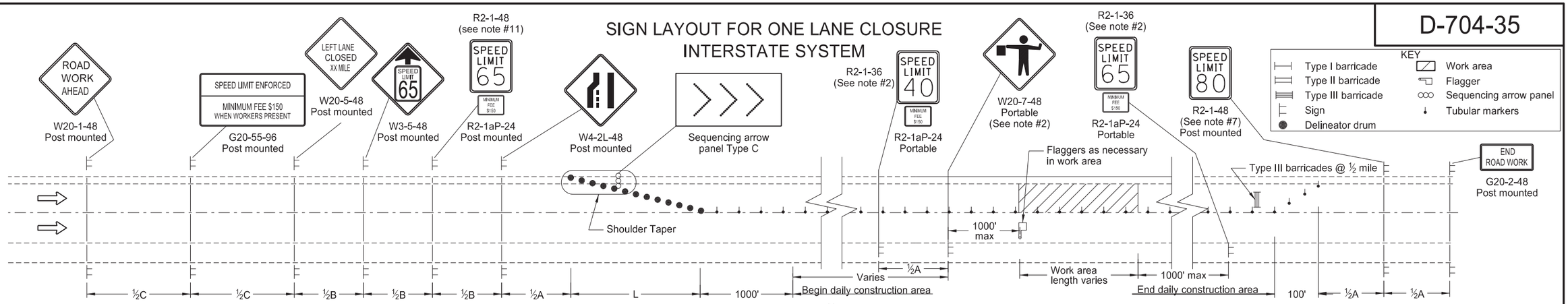
ENGINEER
NORTH DAKOTA

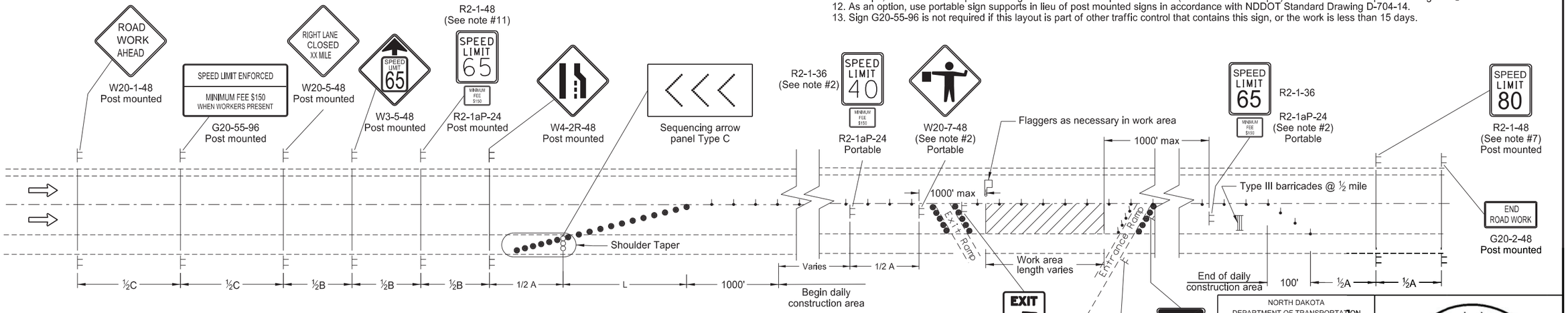
D-704-35

SIGN LAYOUT FOR ONE LANE CLOSURE INTERSTATE SYSTEM



LEFT LANE CLOSED
WORKERS IN WORK AREA

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min (ft)		
	A	B	C
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



RIGHT LANE CLOSED
WORKERS IN WORK AREA

Notes:
1. Install advance signs for flagging when flaggers are flagging.
2. Move the advanced flagger sign and the speed limit signs as the work area moves through the construction zone. When the work area is not visible from the flagger, move the flagger station so the work area is visible. Space the 40 mph speed limit sign at ½A in advance of the flagger sign and move the 65 mph speed limit sign. Cover or remove the 40 mph speed limit and Minimum Fee $150 signs and the 65 mph speed limit sign upon completion of the work day or when workers are not present.
3. RAMPS: When the work area encompasses an entrance ramp, install a 40 mph speed limit sign on the ramp and cover any existing yield sign. Install new yield sign as necessary. Remove the ramp speed limit sign when the main line 40 mph speed zone is moved past the ramp.
4. Variables:
   S=Numerical value of speed limit or 85th percentile
   W=The width of taper.
   L=Minimum length of taper, or SxW for freeways, expressways, and all other roads with speeds of 45 mph or greater, or
   WxSxS/60 for urban, residential, and other streets with speeds of 40 mph or less.
5. Space delineator drums for tapering traffic at the dimension "S". Space tubular markers used for tangents at 2 times dimension "S".
6. 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 the roadway surface.
   Use Type C on roadways with high traffic speeds and volumes (over 40 mph or 5000 ADT or greater).
7. Re-establish the speed limit. Determine the exact speed limit in the field, dependent on location and conditions.
8. Cover existing speed limit signs within a reduced speed zone.
9. Upon approval, the Engineer will measure obliterated or covered pavement marking as Obliteration of Pavement Marking.
10. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the diamond sign, and at such a distance above the edge that the flag does not touch the sign when limp.
11. Determine the reduced speed limit dependent on the in place speed limit before construction. When speed limits are to be reduced more than 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.
12. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
13. 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.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-7-2012

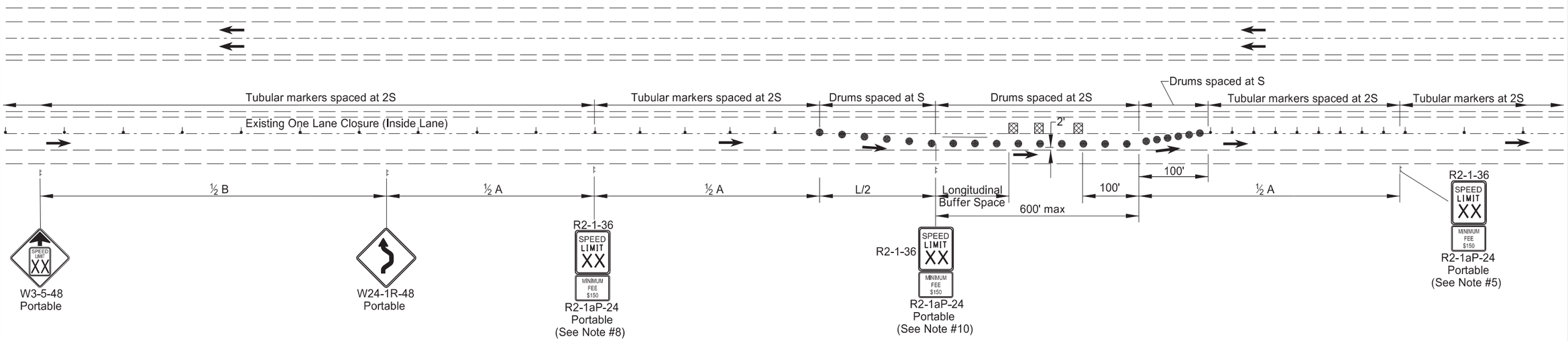
REVISIONS

DATE	CHANGE
06-23-14	Revised Note 12
03-15-16	Removed Do Not Pass signs & updated notes
08-17-17	Moved speed signs & added note
10-17-17	Corrected spelling of "shoulder"
11-01-19	Revised tubular Mrkrs symbols
12-08-21	Switched order of Road Work Ahead and Spd Limit Enforced, added Dollars At Work, & removed table
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

SIGN LAYOUT TO MOVE TRAFFIC TO OUTSIDE SHOULDER ON FOUR LANE DIVIDED HIGHWAY

D-704-35A



KEY

- Work area
- Sign
- Traffic Direction
- Tubular marker
- Delineator drum

Notes

1. Install advance signs for flagging when flaggers are flagging.
2. Return traffic to the driving lane during non working hours (change this layout back to a one lane closure and cover or remove the signs.)
3. Variables:
   S = Numerical value of speed limit or 85th percentile.
   W = Width of taper.
   L = Minimum length of taper, (S x W for freeways, expressways, and roads with speeds of 45 mph or greater, or W x S^2 /60 for streets with speeds of 40 mph or less.)
4. Space delineator drums, and tubular markers for tapering traffic at dimension "S". Space tubular markers for tangents at 2 times dimension "S".
5. Re-establish the speed limit. Recommend using speed limit 10 mph below preconstruction speed limit. Determine the exact speed limit in the field, dependent on location and conditions.
6. Cover existing speed limit signs within a reduced speed zone.
7. Install flags on warning signs in urban areas where 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. Recommend using 45 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.
9. Determine the reduced speed limit dependent on the in place speed limit before construction. When speed limits are to be reduced more than 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at½B.
10. Recommend using 25 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

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.

ADVANCE WARNING SIGN SPACING			
	Distance Between Signs Min (ft)		
Road Type	A	B	C
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

10-26-12

REVISIONS

DATE	CHANGE
08-17-17	Updated notes & sign size & nos
11-01-19	Added notes & updated sign nos
08-02-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

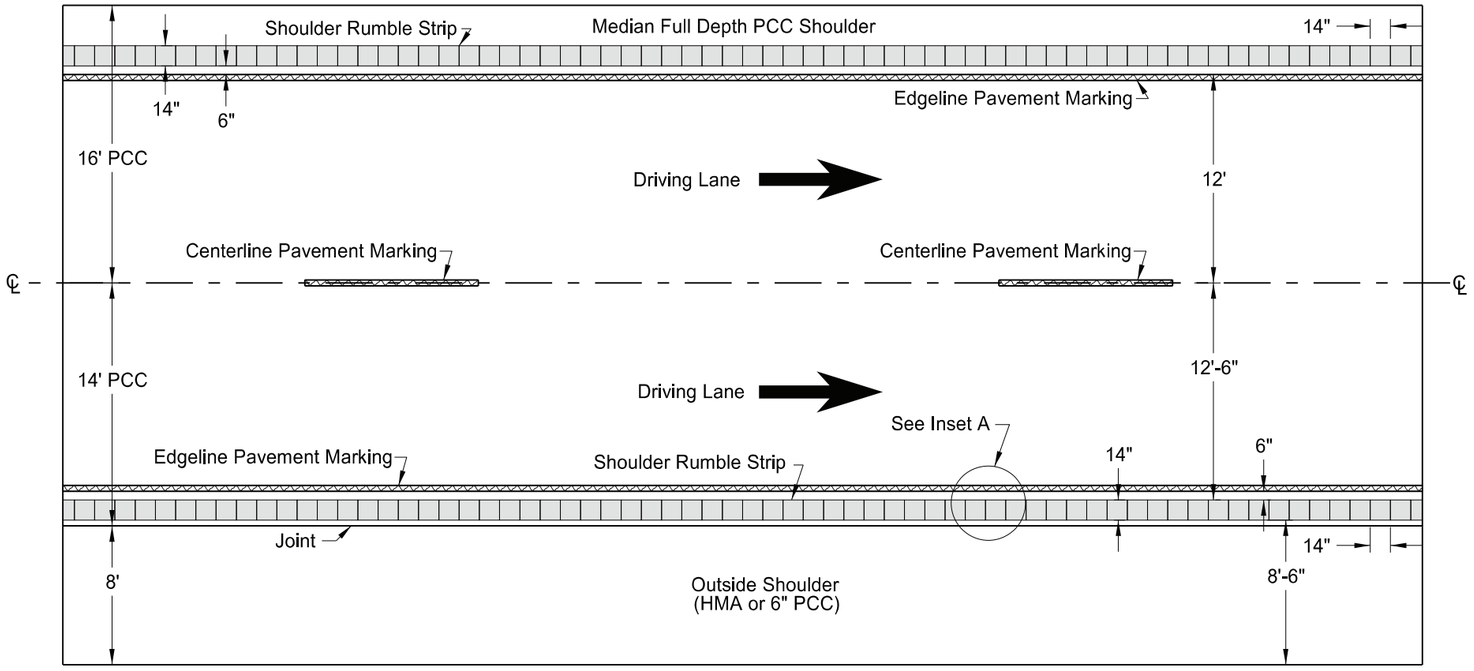
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 06/30/25 ENGINEER NORTH DAKOTA

RUMBLE STRIPS
INTERSTATE HIGHWAYS

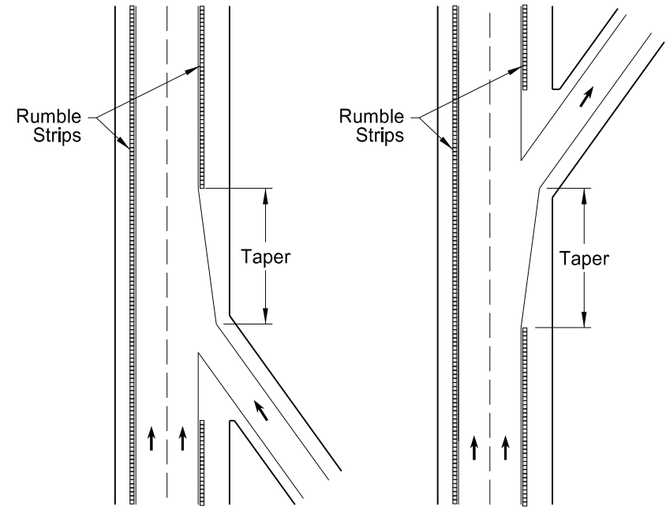
D-760-1

NOTES:

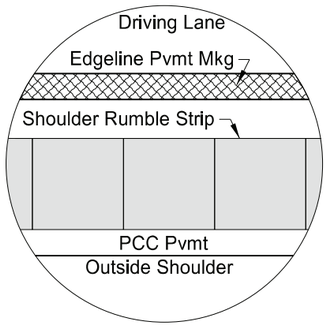
1) Discontinue rumble strips through ramps and tapers.



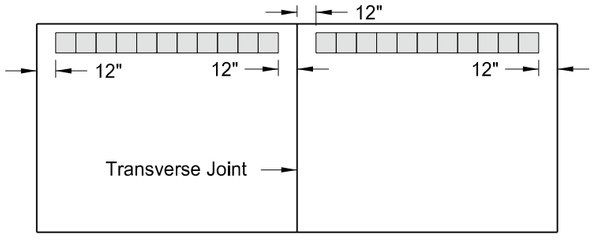
30' Wide Full Depth PCC with 8' Wide HMA Outside Shoulder



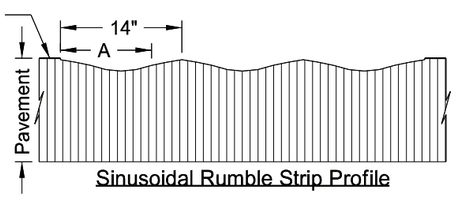
Entrance Ramp Exit Ramp



Inset A - Shoulder Rumble Strip
(Layout for opposite shoulder reversed)



Discontinue rumble strip approx. 12" on both sides of PCC transverse joint



Sinusoidal Rumble Strip Profile

Milling Depths		
Location A (in)	Depth	
	MIL	in
0	62.5	1/16
1 3/4	156	5/32
3 1/2	281	9/32
5 1/4	438	7/16
7	500	1/2
8 3/4	438	7/16
10 1/2	281	9/32
12 1/4	156	5/32
14	62.5	1/16

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

12-29-09

REVISIONS

DATE	CHANGE
2-25-10	Note 4 was added.
9-08-11	Revised Notes and D-760-1.
8-30-18	Revised drawings for clarity.
10-25-19	Added missing dimensions.
11-16-21	Added rumbles to end of taper.
5-26-23	Rumble strips made sinusoidal.

KIRK J. HOFF
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PROFESSIONAL
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ENGINEER
NORTH DAKOTA

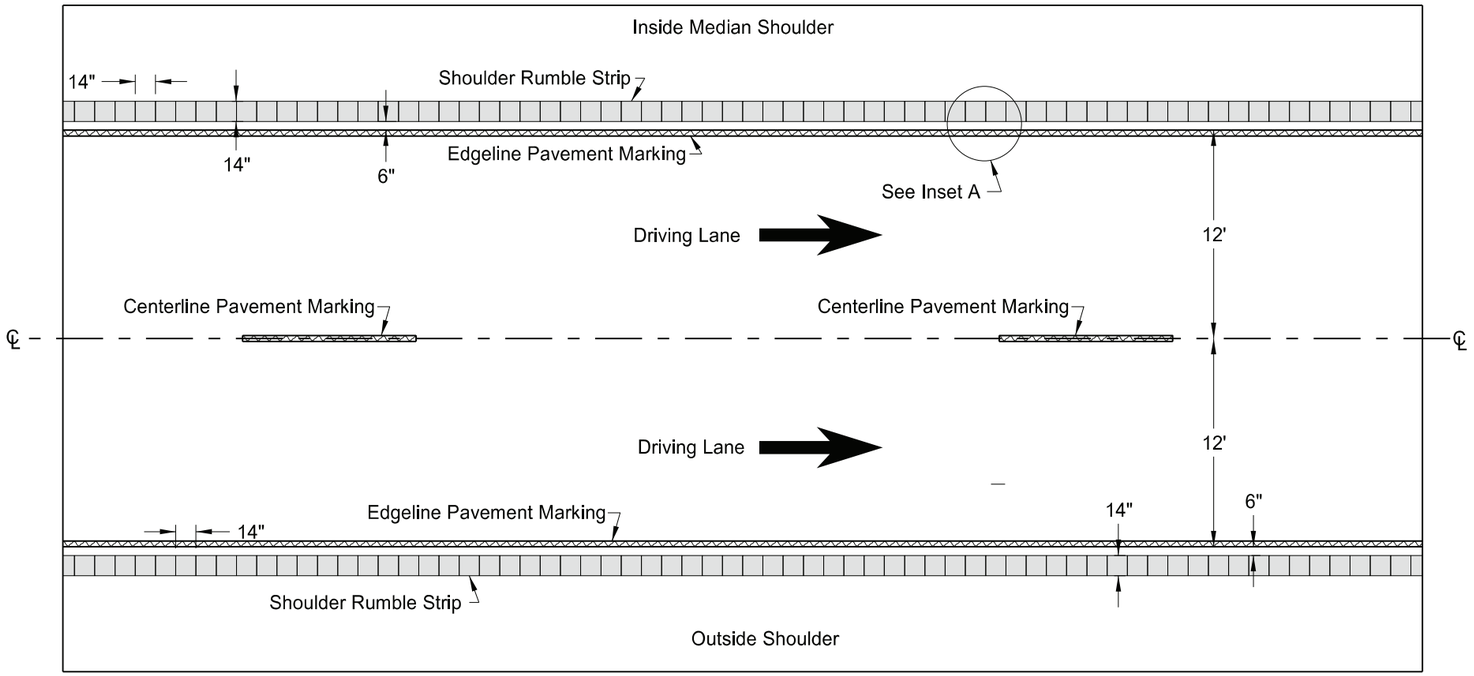
05/26/23

RUMBLE STRIPS
DIVIDED HIGHWAYS (NON-INTERSTATE)

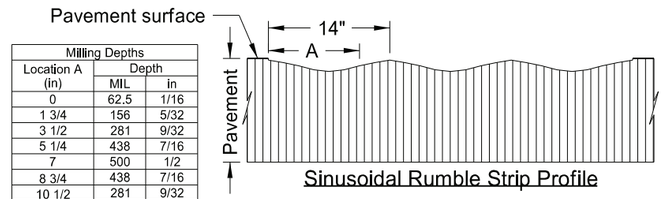
D-760-2

NOTES:

1) Discontinue rumble strips through the entire length of turn lanes and tapers, at ramps and tapers, and at the radius of paved or gravel highways, section line approaches, and private drives.

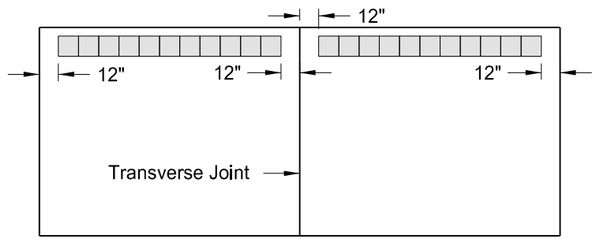


Divided Highways (Non-Interstate)

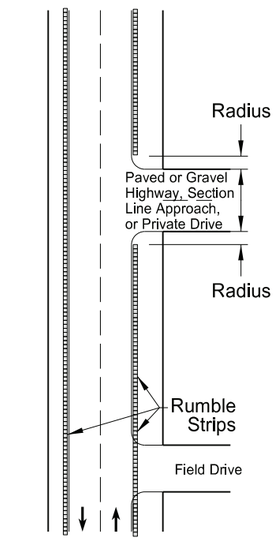


Milling Depths		
Location A (in)	Depth	
	MIL	in
0	62.5	1/16
1 3/4	156	5/32
3 1/2	281	9/32
5 1/4	438	7/16
7	500	1/2
8 3/4	438	7/16
10 1/2	281	9/32
12 1/4	156	5/32
14	62.5	1/16

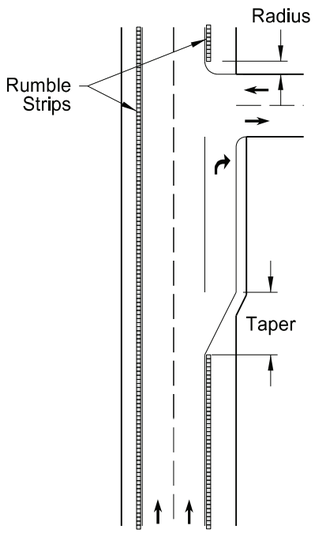
Sinusoidal Rumble Strip Profile



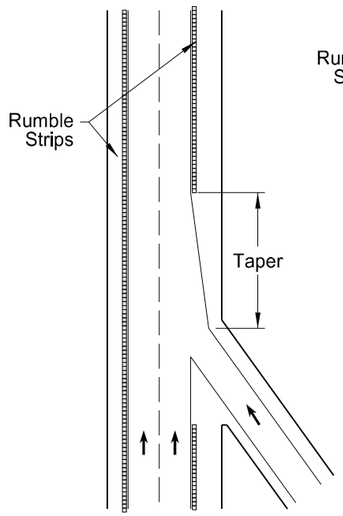
Discontinue rumble strip approx. 12" on both sides of PCC transverse joint



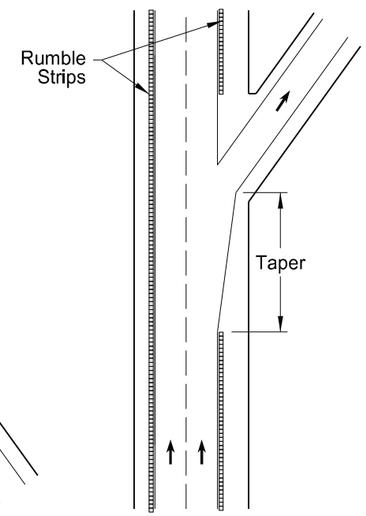
Entrance Roadways



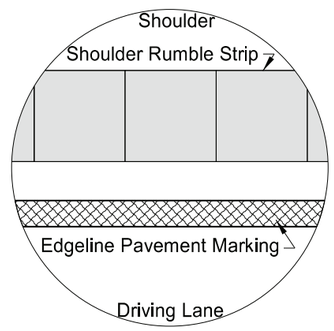
Turn Lane
(Right & Left)



Entrance Ramp



Exit Ramp



Inset A - Shoulder Rumble Strip
(Layout for opposite shoulder reversed)

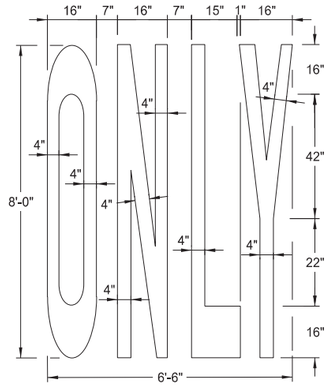
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-29-09	
REVISIONS	
DATE	CHANGE
2-25-10	Note 4 was added.
9-08-11	Revised Notes and D-760-2.
8-27-19	New Design Engr PE Stamp.
11-16-21	Added rumbles to end of taper.
5-26-23	Rumble strips made sinusoidal.

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

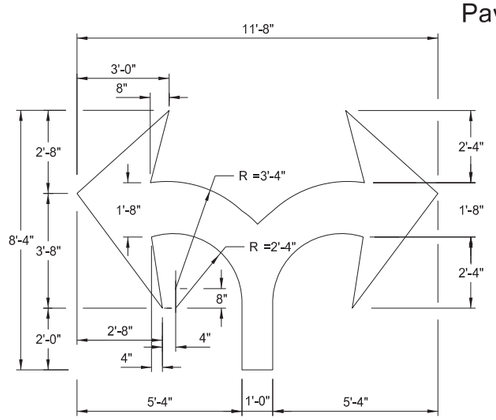
05/26/23

Pavement Marking Message Details

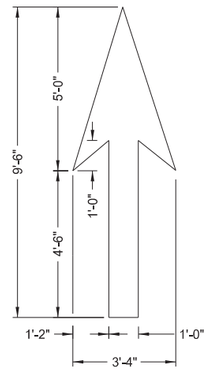
D-762-1



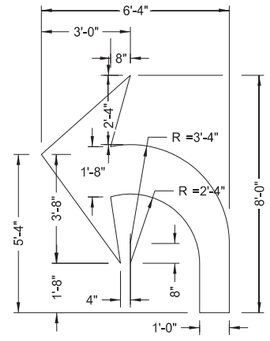
22 S. F.



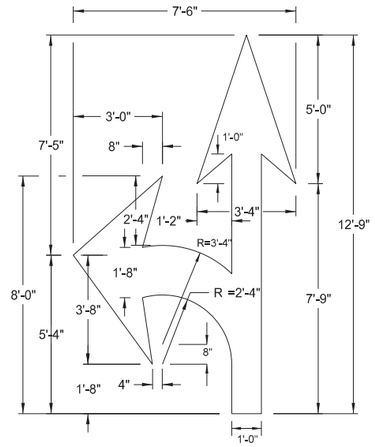
29 S. F.



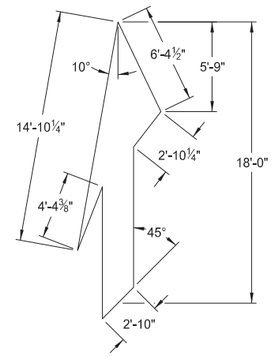
12 S. F.



16 S. F.

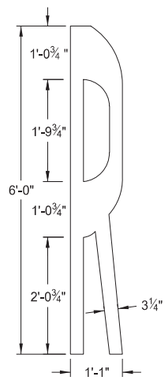


27 S. F.

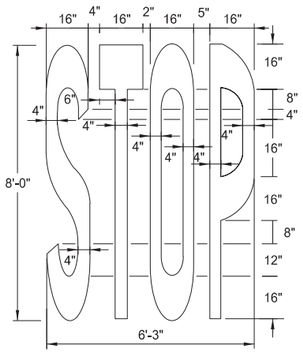


41 S. F.

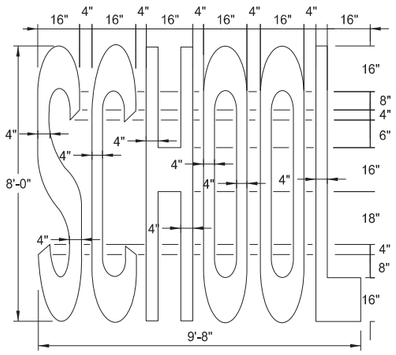
Note: Rotate merge arrow 20° from edge of roadway.



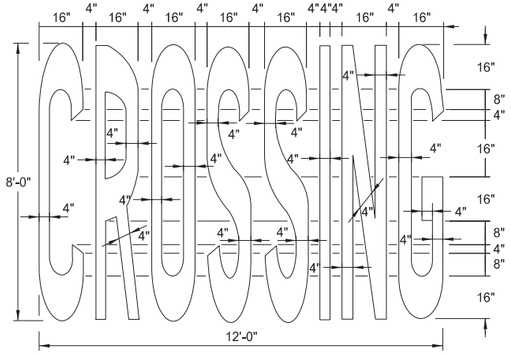
4 S. F.



22 S. F.



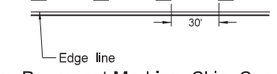
34.5 S. F.



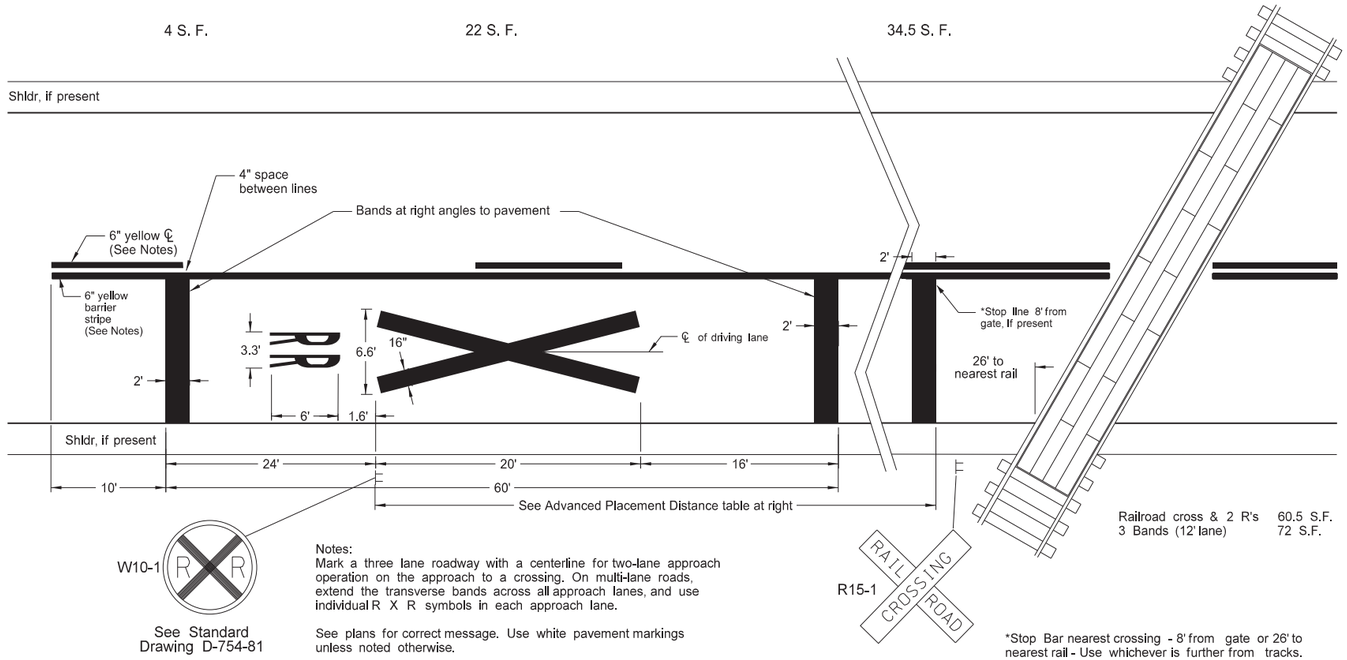
46 S. F.

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



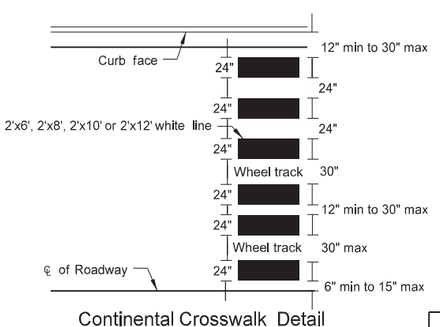
Notes:
Mark a three lane roadway with a centerline for two-lane approach operation on the approach to a crossing. On multi-lane roads, extend the transverse bands across all approach lanes, and use individual R X R symbols in each approach lane.

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

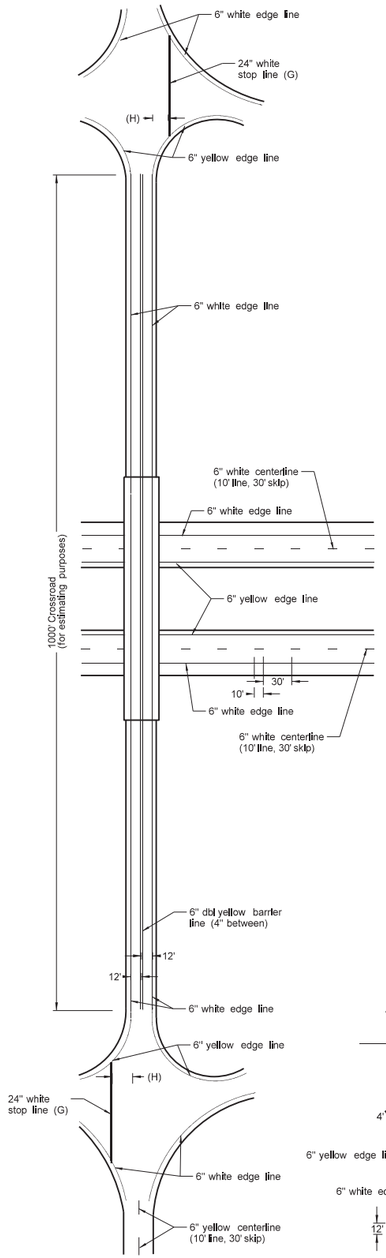
REVISIONS

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

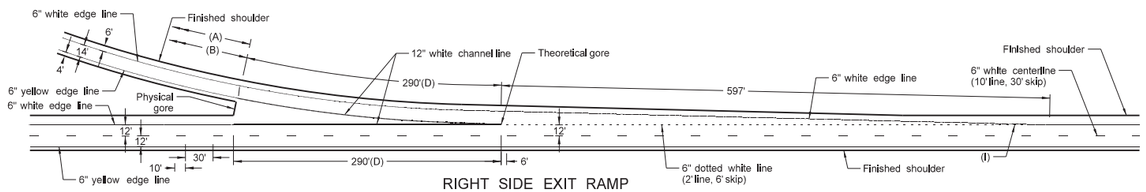
INTERSTATE PAVEMENT MARKING
4 LANE DIVIDED HIGHWAY

D-762-2

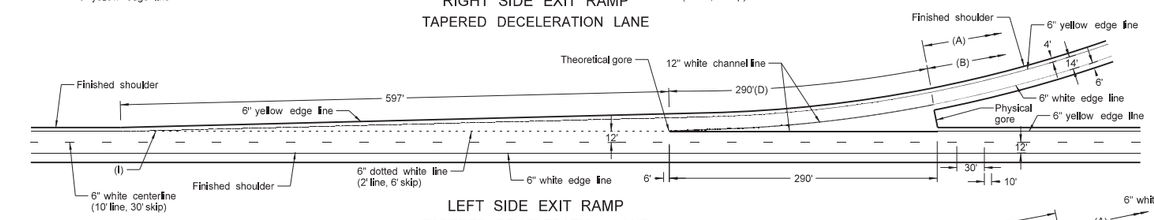


CROSS-ROAD & STRUCTURE

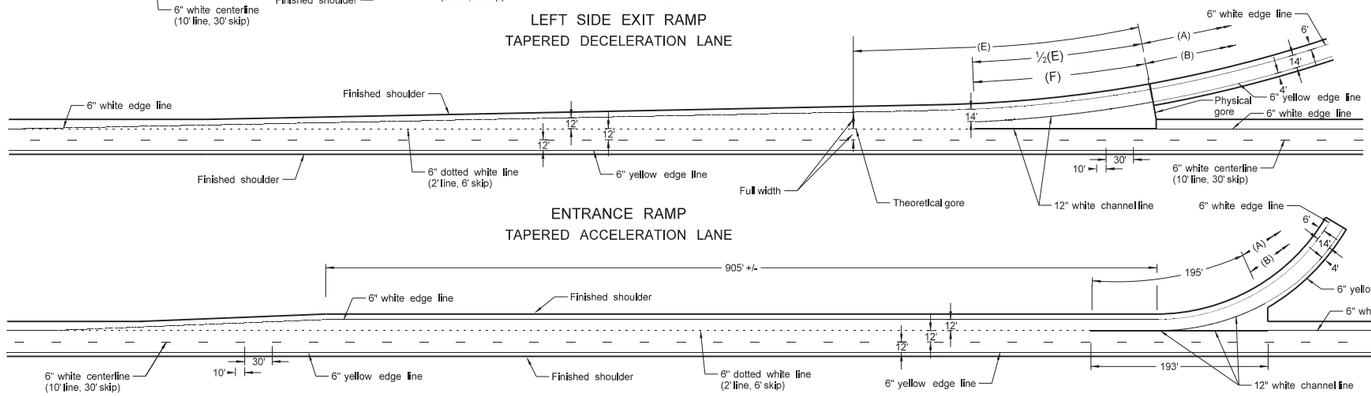
Engineer will determine length striped.



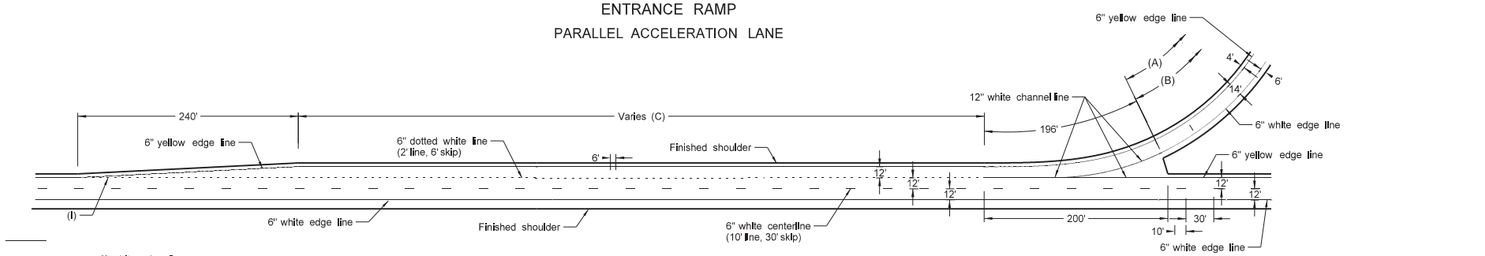
RIGHT SIDE EXIT RAMP
TAPERED DECELERATION LANE



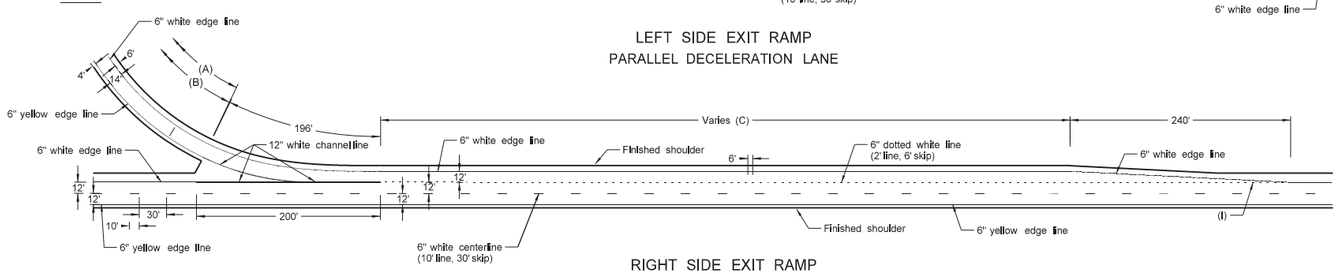
LEFT SIDE EXIT RAMP
TAPERED DECELERATION LANE



ENTRANCE RAMP
TAPERED ACCELERATION LANE



ENTRANCE RAMP
PARALLEL ACCELERATION LANE



RIGHT SIDE EXIT RAMP
PARALLEL DECELERATION LANE

NOTE:

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

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

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

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

(C) Assume "varies" equals 790' for purpose of estimate. Place pavement marking from beginning of taper to the 12" line.
(D) Beginning of physical gore to theoretical gore.
(E) If the distace is less than 350' extend the 12" channel line to the theoretical gore, otherwise use 195'.
(F) Use 195' for estimating purposes.
(G) Not required for gravel surface crossroad approaches.
(H) 4' minimum, 15' maximum from nearest edge of intersection traveled way.
(I) Extend dotted line until it touches the edgeline.

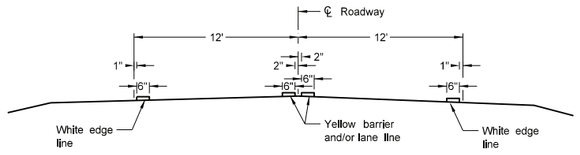
BASIS OF ESTIMATE		
LOCATION	ITEM	
Right or Left Side Exit Ramp TAPERED	12" White channel line	580 LF
	24" White stop line	60 LF
	6" White dotted line	148 LF
	6" White edge line	1115 LF
	6" Yellow edge line	1075 LF
Entrance Ramp TAPERED	12" White channel line	390 LF
	6" White dotted line	258 LF
	6" White edge line	1270 LF
	6" Yellow edge line	1075 LF
Right or Left Side Exit Ramp PARALLEL	12" White channel line	396 LF
	24" White stop line	60 LF
	6" White dotted line (C)	258 LF
	6" White edge line	1115 LF
	6" Yellow edge line	1075 LF
Entrance Ramp PARALLEL	12" White channel line	388 LF
	6" White dotted line	283 LF
	6" White edge line	1275 LF
	6" Yellow edge line	1075 LF
Main Line (Both Roadways)	6" White lane line, 10' line, 30' skip	2640 LF/MI
	6" White edge line	10,560 LF/MI
	6" Yellow edge line	10,560 LF/MI
Cross Road	6" White edge line	2000 LF
	6" Dbl yellow barrier line (4" between)	2000 LF

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-3-11	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice
10-25-19	Replaced 2' Max dim with Note (I)
11-05-21	Revised labels
11-22-23	Revised pvmt marking widths
1-17-24	Revised wide pvmt marking width

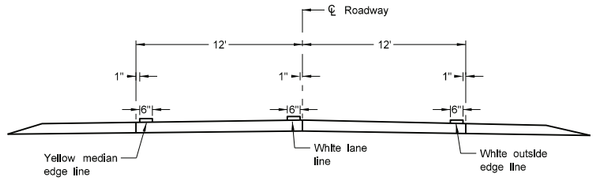
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
01/17/24
ENGINEER
NORTH DAKOTA

PAVEMENT MARKING

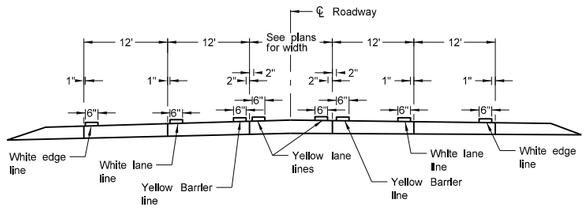
D-762-4



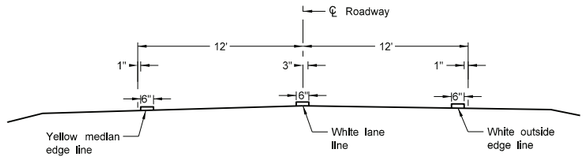
Two Lane Two Way
RURAL ROADWAY



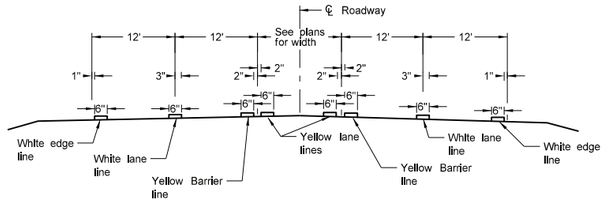
Two Lane Roadway
INTERSTATE HIGHWAY
Concrete Section



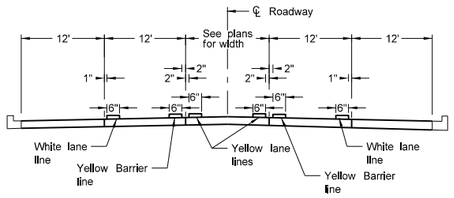
RURAL FIVE LANE ROADWAY
Concrete Section



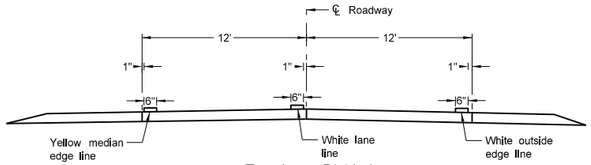
Two Lane Divided
Rural Roadway
PRIMARY HIGHWAY
Asphat Section



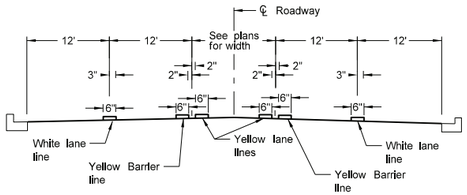
RURAL FIVE LANE ROADWAY
Asphalt Section



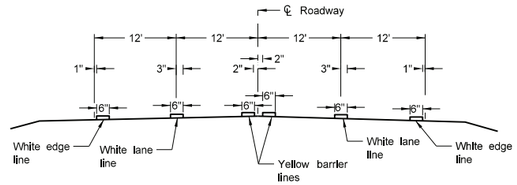
URBAN FIVE LANE SECTION
Concrete Section



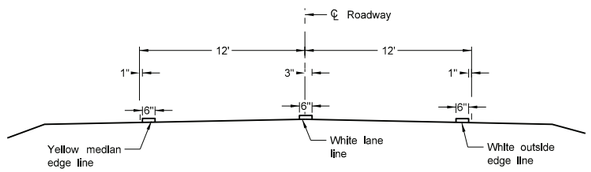
Two Lane Divided
Rural Roadway
PRIMARY HIGHWAY
Concrete Section



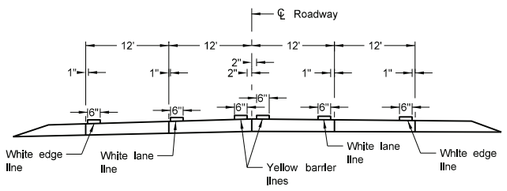
URBAN FIVE LANE SECTION
Asphalt Section



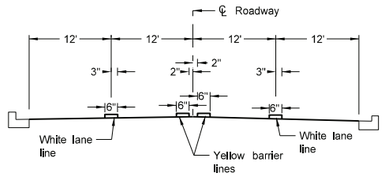
RURAL FOUR LANE ROADWAY
Asphalt Section



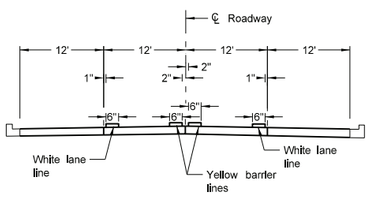
Two Lane Roadway
INTERSTATE HIGHWAY
Asphalt Section



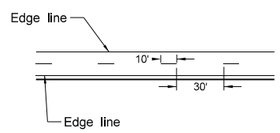
RURAL FOUR LANE ROADWAY
Concrete Section



URBAN FOUR LANE SECTION
Asphalt Section



URBAN FOUR LANE SECTION
Concrete Section



CENTERLINE PAVEMENT MARKING SKIP SPACING DETAIL

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.

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.

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
07/09/24
ENGINEER
NORTH DAKOTA