	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	23069	1	1

JOB # 48
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

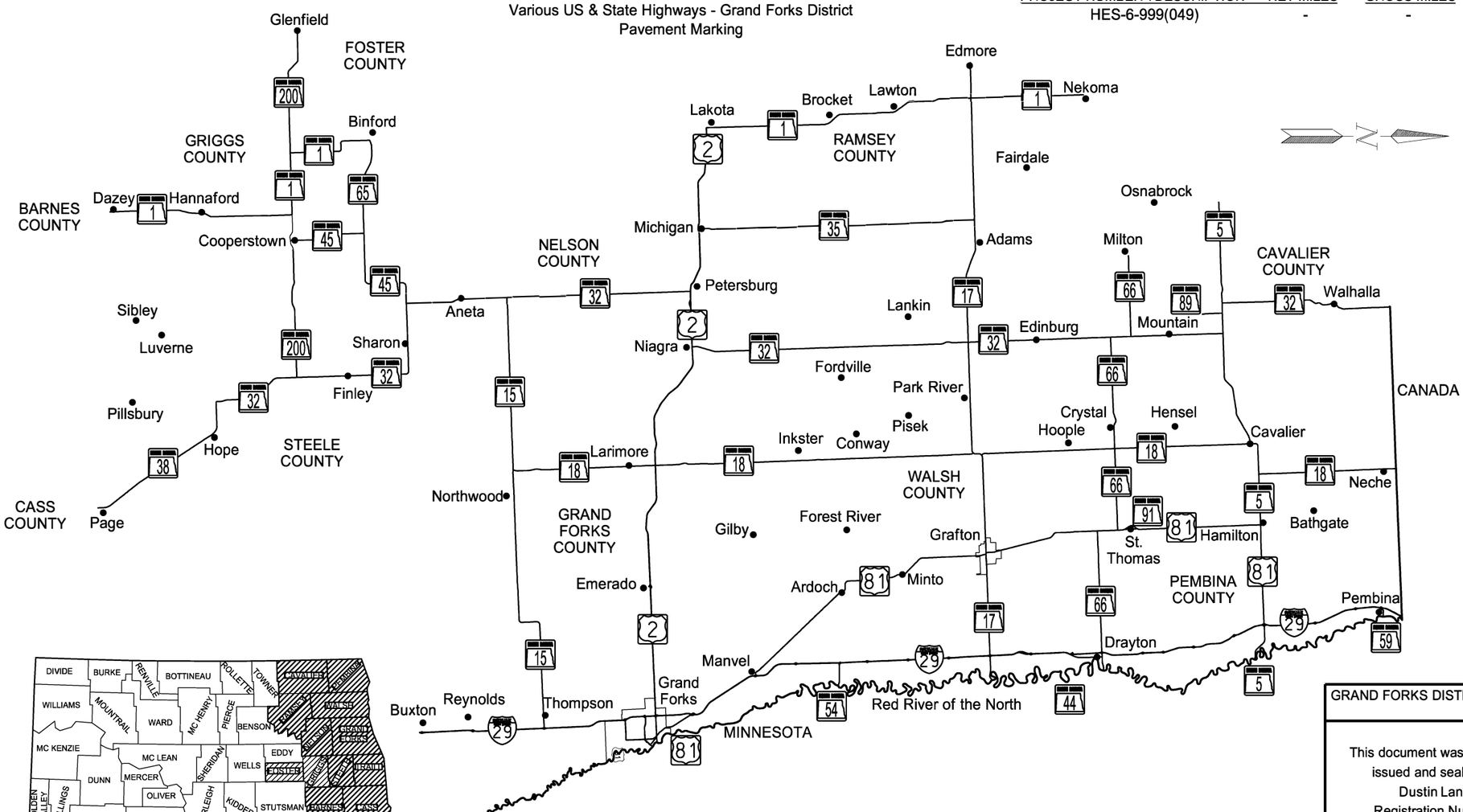
HES-6-999(049)

Barnes, Cass, Cavalier, Foster, Grand Forks, Griggs, Foster, Nelson, Pembina, Steele, Ramsey, and Walsh Counties

Various US & State Highways - Grand Forks District
Pavement Marking

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	10/1/2020
Supplemental Specifications	NONE

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
HES-6-999(049)	-	-



STATE COUNTY MAP

DESIGNER
Joshua Twamley
DESIGNER
DESIGNER

ND DEPARTMENT OF TRANSPORTATION
GRAND FORKS DISTRICT

Ed Palvish 12/18/2020

GRAND FORKS DISTRICT

This document was originally issued and sealed by Dustin Lang Registration Number PE- 6394 , on 12/18/2020 and the original document is stored at the North Dakota Department of Transportation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	H-6-999(049)	2	1

TABLE OF CONTENTS

PLAN SECTIONS

LIST OF STANDARD DRAWINGS

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	6	1

NOTES

100-P01 PROJECT COORDINATION: Coordinate with Engineer at least one week prior to beginning work to determine if roadway segments are prepared for work to begin.

Segments may be added or removed depending upon projects under contract during the 2021 construction season.

107-P01 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the Northern Plains Railroad (NPR) at the locations on Section 10, Sheet 11. The type of work that will be performed within the railroad right of way is Pavement Marking. Direct inquiries regarding protective liability insurance to:

Jesse Chalich
Vice President Operations
Northern Plains Railroad
P.O. Box 38
Fordville, ND 58231
701-229-3330
jesse_chalich@nprail.com

Obtain information regarding the crossing numbers on Section 10, Sheet 11 from the Federal Railroad Administration website: http://safetydata.fra.dot.gov/Officeofsafety/

107-P02 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the BNSF Railway Company at the locations on Section 10, Sheet 11. The type of work that will be performed within the railroad right of way is Pavement Marking. Direct inquiries regarding protective liability insurance to:

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

Obtain information regarding the crossing numbers on Section 10, Sheet 11 from the Federal Railroad Administration website: http://safetydata.fra.dot.gov/Officeofsafety/

107-P03 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the Dakota Northern Railroad (DNR) at the locations on Section 10, Sheet 11. The type of work that will be performed within the railroad right of way is Pavement Marking. Direct inquiries regarding protective liability insurance to:

Jason Bierworth
DNRR
Operations Manager
P.O. Box 705
Crookston, MN 56716
(218) 281-4704 Work
(701) 741-6086 Mobile
mnnjb@kbninc.net

Obtain information regarding the crossing numbers on Section 10, Sheet 11 from the Federal Railroad Administration website: http://safetydata.fra.dot.gov/Officeofsafety/

704-P01 TRAFFIC CONTROL FOR PAVEMENT MARKING OPERATION: Maintain traffic at all times. Provide traffic control based on the following list:

1. D-704-27

Include all costs associated with traffic control for painting pavement markings in the contract unit price “PVMT MK INSTALLATION”.

704-P02 TRAFFIC CONTROL FOR PAVEMENT MARKING MESSAGE OPERATION: Maintain traffic at all times. Provide traffic control based on the following list:

1. D-704-14, Note 6
2. D-704-15, Layout A

Any other method of traffic control must be submitted to the Engineer for approval prior to use in the field.

Include all costs associated with traffic control and flagging for painting pavement messages in the contract unit price “PVMT MK PAINTED-MESSAGE”.

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	6	2

NOTES

762-P01 ESTIMATED QUANTITIES: Total pavement marking quantity is to the nearest whole mile for bidding purposes.

762-P02 PAVEMENT MARKING INSTALLATION: Installation of pavement marking will be paid by the mile for each 4 IN painted line when applied, completed, and accepted. Unless any changes are made and approved by the Engineer. No field measurements are to be for bid item “PVMT MK INSTALLATION”.

No pavement marking is required where grooved preformed patterned or epoxy applied pavement marking is already in place unless otherwise noted. See Section 10 Sheet 13 Table B for excluded areas.

762-P03 EDGE LINES: Discontinue edge lines for County, Township, and City roads, and where curb and gutter are present.

Quantities have been included for painting the radii of interchange connections, intersections of State Highways, US Highways, and paved County Roads.

Installation of edge lines for wraparounds on US Highway 2 are to be for US Highways, State Highways, and paved County Roads only.

762-P04 PAVEMENT MARKING INSTALLATON AT REST AREAS: Apply 4” White and Blue Pavement Marking to parking spaces at Larimore Rest Area at the JCT of US HWY 2 and ND HWY 18 and Alexander Henry Rest Area at RP 179 – Northbound and Southbound I-29.

Quantities for the Larimore Rest Area:
- 4” White Line = 1,144 LF
- 4” Blue Line = 236 LF

Quantities for the Alexander Henry Rest Area – NB/SB Sites:
- 4” White Line = 2,640 LF
- 4” Blue Line = 338 LF

Refer to Section 120 Sheets 29 and 33 for layouts of the parking spaces.

Include all costs associated with the installation of 4” Lines in the contract unit price “PVMT MK PAINTED 4” LINE”.

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
107	0108	RAILWAY PROTECTION INSURANCE	EA	25	25
702	0100	MOBILIZATION	L SUM	1	1
762	0103	PVMT MK PAINTED-MESSAGE	SF	15,998	15,998
762	0107	PVMT MK INSTALLATION	MILE	1,842	1,842
762	1104	PVMT MK PAINTED 4IN LINE	LF	4,358	4,358
762	1106	PVMT MK PAINTED 6IN LINE	LF	5,615	5,615
762	1108	PVMT MK PAINTED 8IN LINE	LF	89,822	89,822
762	1112	PVMT MK PAINTED 12IN LINE	LF	1,784	1,784
762	1124	PVMT MK PAINTED 24IN LINE	LF	6,979	6,979

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	1

BASIS OF ESTIMATE

2021 GRAND FORKS DISTRICT TWO LANE HIGHWAY PAVEMENT MARKING SUMMARY

ROUTE	LOCATION	FROM REF. POINT	TO REF. POINT	RDWY (MILES)	Main Line Length of				Approach Length of			Messages														SEE SEC. 10 TABLES A, B OR BELOW FOR NOTES
												Arrows (AR)			CROSS HATCH (CH)			CROSSWALK (CW)		STOP AHEAD (SA)		RAILROAD (RR)				
					EDGE LINE (MILES)	SKIP (MILES)	BARRIER (MILES)	TOTAL PAINT (MILES)	6" LINE (LF)	8" LINE (LF)	24" LINE (LF)	# OF ARROWS	ARROWS (SF) 16 SF EACH	MESSAGE THROUGH ARROWS (SF) 12 SF EACH	# OF CROSS HATCH LOCATIONS	4" BORDER (LF)	8" HATCHING (LF)	# OF CONTINENTAL CROSSWALK	CONTINENTAL CROSSWALK (SF)	# OF STOP AHEAD	STOP AHEAD (SF) 52 SF EACH	# OF RR MESSAGES	"X" & "RR" (SF) 60.5 SF EACH	24" BANDS (SF) 72 SF EACH	COMMENTS	
ND 1	Jct ND 26 N to County Line	95.662	99.669	4.007	8.014	1.002	0.332	9.348	-	-	27	-	-	-	-	-	-	-	-	1	52	-	-	-	RP 000.153 1 SA	-
ND 1	CO LN N to Municipal Section Hannaford	99.669	104.070	4.401	8.802	1.100	0.720	10.622	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 1	Municipal Section Hannaford	104.070	104.789	0.719	0.926	0.028	1.218	2.172	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 1	Municipal Section Hannaford to Jct ND 200	104.789	113.714	8.925	17.850	2.231	1.314	21.395	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 1	E Jct ND 200 (Cooperstown) to W Jct ND 200	113.714	119.821	6.107	12.214	1.527	0.369	14.110	-	588	-	5	80	-	-	-	-	-	-	-	-	-	-	-	RP 113.740 2 AR, RP 119.761 3 AR	-
ND 1	W Jct ND 200 N to Jct ND 65 (Binford)	119.821	128.493	8.672	17.344	2.168	5.261	24.773	-	53	20	-	-	-	-	-	-	-	-	1	52	-	-	-	RP 119.821 1 SA	-
ND 1	Lakota Municipal	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 1	Jct US 2 (Lakota) N to County Line	162.802	173.833	11.031	22.062	2.758	1.707	22.062	-	-	-	-	-	-	1	93	98	-	-	-	-	4	242	288	RP 162.802 2 CH, RP 163.060 2 RR, RP 171.330 2 RR	-
ND 1	CO LN N to Lawton	173.833	181.581	7.748	15.496	1.937	1.108	18.541	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 1	Lawton N to Jct 17 (Edmore)	181.581	189.521	7.940	15.880	1.985	0.387	18.252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 1	Jct 17 (Edmore) N to Cavalier Co. Line	189.521	198.527	9.006	18.012	2.252	1.393	21.657	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 1	Cavalier Co. Line N to Nekoma Spur	198.527	200.526	1.999	3.998	0.500	-	4.498	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 5	District Boundary to Jct ND 32 (Hallson)	288.966	302.001	13.035	26.070	3.259	4.956	34.285	-	-	-	2	32	-	-	-	-	-	-	-	-	-	-	-	RP 301.947 2 AR	-
ND 5	Jct ND 32 (Hallson) E to Cavalier	302.001	314.009	12.008	22.512	3.279	3.848	29.639	382	1394	114	14	224	-	-	-	-	12 - 2' x 8'	192	-	-	2	121	144	RP 307.860 12 AR, RP 313.257 2 AR, RP 313.270 2 RR	B & See Note 1
ND 5	Cavalier to Jct ND 81 (Hamilton)	314.009	322.180	8.171	16.342	2.043	1.904	20.289	-	285	-	2	32	-	-	-	-	-	-	-	-	-	-	-	RP 317.245 2 AR	-
ND 5	Jct I-29 (Joliette) E to Red River	332.003	335.813	3.810	7.620	0.953	1.163	9.736	-	-	-	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 332.170 2 RR	-
ND 15	Jct ND 32 E to 1 Mi W of Northwood	89.872	107.934	18.062	36.124	4.516	1.866	42.506	-	116	-	2	32	-	-	-	-	-	-	-	-	-	-	-	RP 106.866 2 AR	-
ND 15	1 Mi W of Northwood E to E Jct ND 18	107.934	114.902	6.968	13.936	1.742	2.084	17.762	-	-	-	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 109.360 2 RR	-
ND 15	E Jct ND 18 to Jct I-29	114.902	134.137	19.235	38.470	4.809	3.529	46.808	-	-	-	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 132.620 2 RR	-
ND 15	Thompson Municipal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6 - 2' x 10'	120	-	-	-	-	-	-	-
ND 17	Edmore to Jct ND 1	77.962	82.122	4.160	8.320	1.040	0.546	9.906	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 17	Jct ND 1 to Adams	82.122	96.973	14.851	29.702	3.713	3.881	0.000	-	-	0	-	-	-	-	-	-	-	-	2	0	-	-	-	RP 82.122 2 SA	A
ND 17	Adams to Jct ND 32	96.973	106.314	9.341	18.682	2.335	0.578	21.595	-	157	-	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 96.980 2 RR	-
ND 17	Jct ND 32 to Park River Municipal	106.314	111.310	4.996	9.992	1.249	2.096	13.337	1378	-	-	2	32	-	-	-	-	-	-	-	-	-	-	-	RP 106.354 2 AR	-
ND 17	Park River Municipal	111.310	112.848	1.538	-	0.740	3.382	4.122	-	122	-	14	224	-	-	-	-	11 - 2' x 10' ; 8 - 2' x 10' ; 11 - 2' x 5'	490	-	-	2	121	144	RP 111.860 2 RR	-
ND 17	Park River Municipal to S ND Jct 18	112.848	117.243	4.395	8.790	1.099	0.815	10.704	-	190	-	2	32	-	-	-	-	-	-	-	-	-	-	-	RP 117.193 2 AR	-
ND 17	N Jct ND 18 E to W End of Grafton-School Road	118.119	127.030	8.911	17.822	2.228	1.379	21.429	-	264	-	6	96	-	-	-	-	10 - 2' x 12'	240	-	-	-	-	-	RP 118.159 2 AR, RP 126.928 2 AR, RP 126.966 2 AR	See Note 1
ND 17	Grafton-School Road E to Grafton-Hill Ave	127.030	127.738	0.708	-	0.275	1.238	1.513	158	359	78	21	336	-	-	-	-	16 - 2' x 6'	436	-	-	-	-	-	-	See Note 1 & 2
ND 17	Grafton-Hill Ave E to Grafton Municipal Station 1+37	127.738	127.922	0.184	-	0.047	0.432	0.479	377	655	127	6	96	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 17	Grafton Municipal Sta 1+37 E to Near Jct I-29	127.922	137.688	9.766	19.532	2.442	2.964	24.938	232	-	-	4	64	-	-	-	-	14 - 2' x 8' ; 14 - 2' x 6'	392	-	-	4	242	288	RP 127.910 4 RR	See Note 3 & 4
ND 17	Near Jct I-29 E to Red River	137.688	140.372	2.684	5.368	0.671	1.064	7.103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
							Page Subtotals:	483.579	2527	4183	378	-	1280	0	-	93	98	-	1870	-	104	-	1210	1440		

Indicates exception areas that are NOT to have pavement marking applied

Note 1: Apply 6" Crosswalk Pavement Marking to **Mainline Highways only**. Do not apply pavement marking to side streets.
Note 2: Refer to Section 120 Sheet 8 for Location and Layout of the Continental Crosswalk.
Note 3: Refer to Section 120 Sheet 14 for Location and Layout of the Continental Crosswalk.
Note 4: Refer to Section 120 Sheet 15 for Location and Layout of the Continental Crosswalk.

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	2

BASIS OF ESTIMATE

2021 GRAND FORKS DISTRICT TWO LANE HIGHWAY PAVEMENT MARKING SUMMARY

ROUTE	LOCATION	FROM REF. POINT	TO REF. POINT	RDWY (MILES)	Main Line Length of				Approach Length of			Messages														SEE SEC. 10 TABLES A, B OR BELOW FOR NOTES
												Arrows (AR)			CROSS HATCH (CH)			CROSSWALK (CW)		STOP AHEAD (SA)		RAILROAD (RR)			COMMENTS	
					EDGE LINE (MILES)	℄ SKIP (MILES)	BARRIER (MILES)	TOTAL PAINT (MILES)	6" LINE (LF)	8" LINE (LF)	24" LINE (LF)	# OF ARROWS	ARROWS (SF) 16 SF EACH	MESSAGE THROUGH ARROWS (SF) 12 SF EACH	# OF CROSS HATCH LOCATIONS	4" BORDER (LF)	8" HATCHING (LF)	# OF CONTINENTAL CROSSWALK	CONTINENTAL CROSSWALK (SF)	# OF STOP AHEAD	STOP AHEAD (SF) 52 SF EACH	# OF RR MESSAGES	"X" & "RR" (SF) 60.5 SF EACH	24" BANDS (SF) 72 SF EACH		
ND 18	W Jct ND 15 N to Larimore	152.185	163.186	11.001	22.002	2.750	0.826	25.578	-	-	20	3	48	-	-	-	-	-	-	1	52	-	-	-	RP 157.260 3 AR; RP 152.185 1 SA	-
ND 18	Larimore Municipal	163.186	163.786	0.600	-	-	1.200	1.200	-	-	-	-	-	-	-	-	-	12 - 2' x 6'	144	-	-	2	121	144	RP 163.220 2 RR	-
ND 18	Larimore N to Jct US 2	163.786	166.225	2.439	4.878	0.610	1.129	6.617	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 18	Jct US 2 (Larimore) to N 3 Miles	166.225	169.225	3.000	6.000	0.750	0.756	7.506	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 18	3 Mi No of Jct US 2 to CO LN	169.225	183.378	14.153	28.306	3.538	2.091	33.935	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 18	Co Ln to S Jct ND 17	183.378	197.571	14.193	28.386	3.548	1.405	33.339	-	-	-	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 185.740 2 RR	-
ND 18	W Jct ND 17 N to E Jct ND 17	197.571	198.447	0.876	1.752	0.219	0.672	2.643	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 18	E Jct ND 17 N to Jct CO RD 9	198.447	202.571	4.124	8.248	1.031	0.944	10.223	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 18	Jct Cty Rd 9 N to Co Ln	202.571	207.582	5.011	10.022	1.253	1.517	12.792	-	-	-	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 205.710 2 RR	-
ND 18	Co Ln to 1 Mile S Hensel	207.582	216.597	9.015	18.030	2.254	0.436	20.720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 18	1 Mile S of Hensel N to Cavalier	216.597	224.522	7.925	15.850	1.981	1.056	18.887	118	-	34	2	32	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 18	S End of Cavalier N to W Jct ND 5	224.522	224.991	0.469	-	0.100	0.162	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cavalier Municipal	See Note 1 & B
ND 18	E Jct ND 5 N to Canadian Border	228.609	242.147	13.538	27.076	3.385	1.441	2.489	-	1388	979	12 2	192 -	- 24	4	563	440	-	-	-	-	-	-	-	RP 228.659 2 AR, RP 233.540 3 AR, RP 233.680 3 AR, RP 239.550 2 AR, RP 239.650 2 AR; RP 241.933 BORDER CROSSING 2 AR; RP 233.540 2 CH, 239.550 2 CH	-
ND 32	Jct ND 38 N to S Jct ND 200	104.086	112.875	8.789	17.578	2.197	0.976	20.751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 32	S Jct ND 200 N to Finley	112.875	117.362	4.487	8.974	1.122	1.705	0.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A
ND 32	Finley Municipal Section	117.362	118.090	0.728	-	-	1.456	0.000	0	-	0	-	-	-	-	-	-	-	-	-	-	2	0	0	RP 117.380 2 RR	A & See Note 1
ND 32	Finley N to Jct ND 45	118.090	130.732	12.642	25.284	3.161	3.407	0.000	-	0	-	2	0	-	-	-	-	-	-	-	-	2	0	0	RP 130.662 2 AR; RP 126.610 2 RR	A
ND 32	Jct ND 45 N to Aneta	130.732	136.000	5.268	10.536	1.317	1.103	0.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A
ND 32	Aneta Municipal	136.000	136.350	0.350	0.700	0.087	0.700	0.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A
ND 32	Aneta N to Jct ND 15	136.350	140.714	4.364	8.728	1.091	0.748	0.000	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	0	RP 136.430 RR	A
ND 32	Jct ND 15 N to Jct US 2 (Petersburg)	140.714	158.736	18.022	36.044	4.506	1.501	42.051	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 32	Jct US 2 (Niagara) N to Jct ND 17	164.197	191.471	27.274	54.548	6.819	7.333	68.700	-	169	24	-	-	-	-	-	-	-	-	-	-	4	242	288	RP 177.790 2 RR, RP 180.49 2 RR	-
ND 32	Jct ND 17 N to Edinburg	191.471	198.002	6.531	13.062	1.633	2.705	17.400	-	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 32	Edinburg N to S Jct ND 66	198.002	205.471	7.469	14.938	1.867	1.995	0.000	-	0	-	-	-	-	-	-	-	-	-	-	-	2	0	0	RP 198.270 2 RR	A
ND 32	S Jct ND 66 N to E Jct ND 5 (Hallson)	205.471	216.551	11.080	22.160	2.770	1.154	26.084	-	-	15	2	32	-	-	-	-	-	-	1	52	-	-	-	RP 205.448 2 AR; RP 216.551 1 SA	-
ND 32	W Jct ND 5 N to Walhalla	219.556	230.638	11.082	22.164	2.771	4.746	29.681	-	-	17	-	-	-	-	-	-	-	-	1	52	-	-	-	RP 219.722 1 SA	-
ND 32	Walhalla Municipal	230.638	231.438	0.800	-	0.200	0.536	0.736	984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	See Note 1
ND 32	Walhalla N to State Line	231.438	236.674	5.236	10.472	1.309	0.835	12.616	-	936	1032	2	-	24	-	-	-	-	-	-	-	2	121	144	RP 231.440 2 RR; RP 236.606 BORDER CROSSING 2 AR	-
						Page Subtotals:		393.947	1102	2556	2194	-	304	48	-	563	440	-	144	-	156	-	726	864		

Indicates exception areas that are NOT to have pavement marking applied

Note 1: Apply 6" Crosswalk Pavement Marking to **Mainline Highways only**. Do not apply pavement marking to side streets.
Note 2: Exception up to RP 239.658 apply pavement marking from RP 239.658 to RP 242.147.

This document was originally issued and sealed by Dustin Lang, Registration Number PE-6394, on 12/18/2020 and the original document is stored at the North Dakota Department of Transportation.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	3

BASIS OF ESTIMATE

2021 GRAND FORKS DISTRICT TWO LANE HIGHWAY PAVEMENT MARKING SUMMARY

ROUTE	LOCATION	FROM REF. POINT	TO REF. POINT	RDWY (MILES)	Main Line Length of				Approach Length of			Messages														SEE SEC. 10 TABLES A, B OR BELOW FOR NOTES
												Arrows (AR)			CROSS HATCH (CH)			CROSSWALK (CW)		STOP AHEAD (SA)		RAILROAD (RR)				
					EDGE LINE (MILES)	℄ SKIP (MILES)	BARRIER (MILES)	TOTAL PAINT (MILES)	6" LINE (LF)	8" LINE (LF)	24" LINE (LF)	# OF ARROWS	ARROWS (SF) 16 SF EACH	MESSAGE THROUGH ARROWS (SF) 12 SF EACH	# OF CROSS HATCH LOCATIONS	4" BORDER (LF)	8" HATCHING (LF)	# OF CONTINENTAL CROSSWALK	CONTINENTAL CROSSWALK (SF)	# OF STOP AHEAD	STOP AHEAD (SF) 52 SF EACH	# OF RR MESSAGES	"X" & "RR" (SF) 60.5 SF EACH	24" BANDS (SF) 72 SF EACH	COMMENTS	
ND 35	Jct US 2 N Municipal Section in Michigan	0.000	0.667	0.667	-	-	1.334	1.334	-	-	21	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 0.035 2 RR	-
ND 35	Michigan N to Nelson - Walsh CO LN	0.667	12.183	11.516	23.032	2.879	1.295	27.206	-	-	-	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 9.670 2 RR	-
ND 35	CO LN N to Jct ND 17 (Adams)	12.183	27.264	15.081	30.162	3.770	0.751	34.683	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 38	Page N to Jct ND 32 (Hope)	19.519	36.332	16.813	33.626	4.203	2.334	2.334	-	-	37	2	32	-	-	-	-	-	-	1	52	-	-	-	RP 19.930 2 AR; RP 36.319 1 SA	-
ND 44	Jct I-29 to Drayton	29.434	31.836	2.402	4.804	0.600	0.530	5.934	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 44	Drayton Municipal	31.836	32.636	0.800	-	-	1.600	1.600	730	-	22	-	-	-	-	-	-	46 - 2' x 6'	552	-	-	-	-	-	-	See Note 1 & 2
ND 44	Drayton to Jct ND 66	32.636	32.883	0.247	0.494	0.062	0.428	0.984	-	-	44	-	-	-	-	-	-	-	-	2	104	-	-	-	RP 32.883 2 SA	-
ND 45	Cooperstown Municipal Section	0.000	0.788	0.788	0.000	-	1.556	1.556	1256	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	See Note 1
ND 45	Coooperstown N to Jct ND 65	0.788	7.385	6.597	13.194	1.649	1.226	16.069	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 45	Jct ND 65 E-N-E to Jct ND 32	7.385	18.048	10.663	21.326	2.666	4.812	28.804	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 54	I-29 to Red River (Oslo)	7.695	9.958	2.263	4.526	0.566	1.002	1.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 59	I-29 to Red River (Pembina)	0.000	1.063	1.063	2.126	-	2.056	4.182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 65	Jct ND 1 (Binford) E to Jct ND 45	0.000	9.383	9.383	18.766	2.346	2.113	23.225	-	-	49	-	-	-	-	-	-	-	-	1	52	-	-	-	RP 000.138 1 SA	-
ND 66	District Boundary E to Jct ND 32	93.830	101.868	8.038	16.076	2.010	1.901	19.987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ND 66	Jct ND 32 (Gardar) E to Crystal	103.872	112.811	8.939	17.878	2.235	0.883	20.996	-	-	12	-	-	-	-	-	-	-	-	-	-	2	121	144	RP 112.810 2 RR	-
ND 66	Crystal E to N Jct US 81 (St. Thomas)	112.811	122.947	10.136	20.272	2.534	0.735	23.541	-	454	53	3	32	-	-	-	-	-	-	3	156	-	-	-	RP 122.867 3 AR; RP 114.916 2 SA; RP 122.947 1 SA	-
ND 66	S Jct US 81 to I-29	124.950	136.933	11.983	23.966	2.996	0.691	0.000	-	-	0	-	-	-	-	-	-	-	-	1	0	-	-	-	RP 124.950 1 SA	A
ND 66	I-29 to Jct ND 44	136.933	137.339	0.406	0.812	-	0.812	0.000	-	-	0	-	-	-	-	-	-	-	-	1	0	2	0	0	RP 137.339 1 SA; RP 137.250 2 RR	A
ND 66	Jct ND 44 to RP 138.066 (Bridge)	137.339	138.066	0.727	1.454	0.182	0.153	0.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A
ND 66	RP 138.066 (Bridge) to Red River	138.066	138.720	0.654	1.308	-	1.308	0.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A
							Page Subtotals:	213.437	1986	454	259	-	64	0	-	-	-	-	552	-	364	-	363	432		

Indicates exception areas that are NOT to have pavement marking applied

Note 1: Apply 6" Crosswalk Pavement Marking to **Mainline Highways only**. Do not apply pavement marking to side streets.

Note 2: Apply 6" Crosswalk Line Pavement Marking across ND 44 at Leslie Ave, Harper Ave, Lincoln, Ave, Grant Ave, Mill Ave, and Divide Ave. Apply Continental Crosswalk across ND 44 at Wallace Ave, and Melbourn Ave. Refer to Standard Drawing D-762-1 for Layout.

This document was originally issued and sealed by Dustin Lang, Registration Number PE-6394, on 12/18/2020 and the original document is stored at the North Dakota Department of Transportation.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	4

BASIS OF ESTIMATE

2021 GRAND FORKS DISTRICT TWO LANE HIGHWAY PAVEMENT MARKING SUMMARY

ROUTE	LOCATION	FROM REF. POINT	TO REF. POINT	RDWY (MILES)	Main Line Length of				Approach Length of			Messages														SEE SEC. 10 TABLES A, B OR BELOW FOR NOTES
												Arrows (AR)			CROSS HATCH (CH)			CROSSWALK (CW)		STOP AHEAD (SA)		RAILROAD (RR)				
					EDGE LINE (MILES)	SKIP (MILES)	BARRIER (MILES)	TOTAL PAINT (MILES)	6" LINE (LF)	8" LINE (LF)	24" LINE (LF)	# OF ARROWS	ARROWS (SF) 16 SF EACH	MESSAGE THROUGH ARROWS (SF) 12 SF EACH	# OF CROSS HATCH LOCATIONS	4" BORDER (LF)	8" HATCHING (LF)	# OF CONTINENTAL CROSSWALK	CONTINENTAL CROSSWALK (SF)	# OF STOP AHEAD	STOP AHEAD (SF) 52 SF EACH	# OF RR MESSAGES	"X" & "RR" (SF) 60.5 SF EACH	24" BANDS (SF) 72 SF EACH	COMMENTS	
US 81	Manvel Municipal	-	-	-	-	-	-	-	-	-	60	-	-												-	-
US 81	Manvel to Levant	163.105	169.619	6.514	13.028	1.629	1.324	15.981	-	-	45	-	-							2	104	1	61	72	RP 163.486 1 SA; Manvel 1 RR	-
US 81	Levant NW to N Edge of Ardoch	169.619	175.291	5.672	11.344	1.418	1.634	14.396	-	984	80	10	160									2	121	144	RP 174.940 3 AR, RP 175.050 2 AR, RP 175.070 2 AR, RP 175.120 3 AR; RP 175.270 2 RR	-
US 81	N Edge of Ardoch to Minto	175.291	181.246	5.955	11.910	1.489	2.243	15.642	-	936	96	11	176									2	121	144	RP 175.360 4 AR, RP 176.080 7 AR; RP 175.700 2 RR	-
US 81	Minto Municipal	181.246	182.088	0.842	0.518	0.210	0.410	1.139	-	-	-	-	-												-	-
US 81	Minto N to Grafton	182.088	190.469	8.381	16.762	2.095	1.815	20.672	-	-	-	4	64												RP 190.040 2 AR, RP 190.280 2 AR	-
US 81	Grafton - City sec - RR N to E Jct ND 17	190.469	191.810	1.411	-	-	-	-	-	-	-	-	-												-	B
US 81	Urban Limits - Grafton Bridge N	191.810	192.414	0.604	0.960	0.126	0.741	1.827	-	-	34	-	-									4	242	288	RP 192.140 2 RR, RP 192.370 2 RR	-
US 81	Grafton N Urban Limits to N Jct ND 66 St. Thomas	192.414	204.270	11.856	23.712	2.903	1.820	0.000	-	0	-	8	0												RP 194.970 2 AR, RP 195.130 2 AR, RP 202.191 2 AR, RP 202.341 2 AR	A
US 81	N Jct 66 N 2.54 Mi	204.270	206.800	2.530	5.060	0.633	0.979	28.251	-	1727	-	3	128												RP 204.353 3 AR	-
US 81	Near N Jct ND 66 St Thomas to Jct ND 5 (Hamilton)	206.800	218.530	11.730	23.460	2.933	2.177	0.000	-	-	-	-	-												-	A
US 81	W Jct ND 5 (Hamilton) E to I-29	218.530	228.353	9.823	19.646	2.456	1.069	28.570	-	-	-	-	-												-	-
US 81	Grand Forks City Limits (27th Ave.) N to I-29	946.409	949.485	3.076	6.152	0.769	1.072	7.993	-	-	-	-	-												-	-
ND 89	Concrete Spur - Par Road	10.000	11.960	1.960	3.920	0.490	0.520	4.930	-	-	-	-	-												-	-
ND 91	St. Thomas Spur	900.000	901.262	1.262	2.524	0.316	1.051	3.891	-	-	50	-	-												-	-
ND 200	Jct ND 20 (Glenfield) E to W Jct ND 1	319.373	331.806	12.433	24.866	3.127	2.507	30.500	-	253	-	2	32												RP 325.786 2 AR	-
ND 200	E Jct ND 1 to Cooperstown	337.913	341.441	3.528	7.056	0.882	2.181	10.119	-	-	-	-	-												-	-
ND 200	Cooperstown to S Jct ND 32	341.441	354.115	12.674	25.348	3.169	2.789	31.306	-	401	44	3	48							1	52				RP 354.093 3 AR; RP 354.115 1 SA	-
						Page Subtotals:		215.215	0	4301	409	-	608	0	-	-	-	-	0	-	156	-	545	648		

Indicates exception areas that are NOT to have pavement marking applied

Note 1: Apply 6" Crosswalk Pavement Marking to **Mainline Highways only**. Do not apply pavement marking to side streets.

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	5

BASIS OF ESTIMATE

2021 GRAND FORKS DISTRICT US HIGHWAY 2 PAVEMENT MARKING SUMMARY

ROUTE	LOCATION	FROM REF. POINT	TO REF. POINT	RDWY (MILES)	Main Line Length of				Approach/Ramp Length of		Messages					SEE SEC. 10 TABLES A, B OR BELOW FOR NOTES
											Arrows (AR)		Cross Hatch (CH)			
					EDGE LINE (MILES)	℄ SKIP (MILES)	BARRIER (MILES)	TOTAL PAINT (MILES)	8" LINE (LF)	24" LINE (LF)	# OF ARROWS	ARROWS (SF) 16 SF EACH	# OF CROSS HATCH LOCATIONS	12" LINE (LF)	COMMENTS	
WB US 2	GF City Limits to Near GF AFB	354.724	343.075	11.649	23.298	2.912	-	0.000	-	0	50	0	-	-	RP 343.350 3 AR, RP 345.820 6 AR, RP 347.800 6 AR, RP 349.790 3 AR, RP 350.790 6 AR, RP 351.240 3 AR, RP 352.780 4 AR, RP 353.290 3 AR, RP 353.510 3 AR, RP 353.770 4 AR, RP 354.290 2 AR, RP 354.540 3 AR	*A
WB US 2	Near GF AFB to Near Arvilla	343.075	337.325	5.750	11.500	1.438	-	0.000	0	0	22	0	1	0	RP 337.420 2 AR, RP 337.950 6 AR, RP 341.050 8 AR, RP 341.950 6 AR; RP 340.500 CH	A
WB US 2	Near Arvilla to RP 333.002	337.325	333.002	4.323	8.646	1.081	-	9.727	391	-	3	48	-	-	RP 337.210 3 AR	-
WB US 2	RP 333.002 to Jct ND 18	333.002	330.520	2.482	4.964	0.621	-	5.585	1932	-	9	144	1	666	RP 330.600 6 AR, RP 332.600 3 AR; RP 330.520 CH	-
WB US 2	Larimore Rest Area	-	-	-	0.213	-	0.293	0.506	40	32	-	-	-	-	-	See Note 1
WB US 2	Jct ND 18 to CO LN	330.520	317.046	13.474	26.948	3.369	-	30.317	898	-	10	160	-	-	RP 317.582 6 AR, RP 319.420 2 AR, RP 323.030 2 AR;	-
WB US 2	CO LN to Michigan Bypass	317.046	306.819	10.227	20.454	2.557	-	0.000	-	-	9	144	-	-	RP 311.500 3 AR, RP 312.120 6 AR	-
WB US 2	Michigan Bypass	306.819	305.219	1.600	3.200	0.400	-	0.000	1383	-	-	-	-	-	-	B
WB US 2	Michigan Access & Frontage Road	306.020	305.255	-	1.438	0.138	0.532	2.108	-	-	6	96	-	-	RP 305.862 3 AR, RP 306.132 3 AR	-
WB US 2	Michigan Bypass to Mapes X - Over	305.219	300.764	4.455	8.910	1.114	-	0.000	-	21	-	-	-	-	-	B
WB US 2	Mapes X - Over to Lakota	300.764	295.468	5.296	10.592	1.324	-	0.000	1573	12	6	96	-	-	RP 295.528 6 AR	B
						Page Subtotals:		48.242	3261	44	-	688	-	666		

Indicates exception areas that are NOT to have pavement marking applied.

* Note: Coordinate with Project NHU-6-002(137)353 & NH-6-002(128)342.

Note 1: 4" White edge line (1,126 LF), 8" blue handicap cross hatched (40 LF) and 4" double yellow barrier line (1,548 LF).

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	6

BASIS OF ESTIMATE

2021 GRAND FORKS DISTRICT US HIGHWAY 2 PAVEMENT MARKING SUMMARY

ROUTE	LOCATION	FROM REF. POINT	TO REF. POINT	RDWY (MILES)	Main Line Length of				Approach/Ramp Length of		Messages					SEE SEC. 10 TABLES A OR B FOR NOTES
											Arrows (AR)		Cross Hatch (CH)			
					EDGE LINE (MILES)	℄ SKIP (MILES)	BARRIER (MILES)	TOTAL PAINT (MILES)	8" LINE (LF)	24" LINE (LF)	# OF ARROWS	ARROWS (SF) 16 SF EACH	# OF CROSS HATCH LOCATIONS	12" LINE (LF)	COMMENTS	
EB US 2	Lakota to RP 295.970	295.468	295.970	0.502	1.004	0.126	-	0.000	644	12	-	-	-	-	-	B
EB US 2	RP 295.970 to Mapes X-Over	295.970	300.969	4.999	9.998	1.250	-	0.000	750	-	4	64	-	-	RP 300.570 4 AR	B
EB US 2	Mapes X-Over to Michigan X-Over	300.969	305.220	4.251	8.502	1.063	-	0.000	924	-	-	-	-	-	-	B
EB US 2	Michigan X-Over to 2 MI E of CO LN	305.220	318.984	13.764	27.528	3.441	-	30.969	2344	42	24	384	-	-	RP 305.232 3 AR, RP 311.350 3 AR, RP 311.980 6 AR, RP 317.442 6 AR	-
EB US 2	2 MI E of CO LN to 1.4 MI W of Jct ND 18	318.984	329.073	10.089	20.178	2.522	-	22.700	1420	-	6	96	-	-	RP 319.360 3 AR, RP 322.995 3 AR	-
EB US 2	1.4 MI W of Jct ND 18 to 1 MI W of GF AFB	329.073	341.721	12.648	25.296	3.162	-	28.458	2422	24	14	224	2	693 425	RP 330.460 6 AR, RP 337.350 2 AR, RP 337.810 3 AR, RP 340.740 3 AR; RP 340.500 CH, RP 335.520 CH	*A & See Note 1
EB US 2	JCT Grand Forks County Road 2 - Intersection	337.123	337.229	-	0.295	-	-	-	0	-	5	0	-	-	RP 337.100 2 AR, RP 337.205 3 AR	-
EB/WB US 2	Interchange 343 @ Emerado - GF AFB	-	-	-	7.787 5.325 Miles Crossroad 2.595 Miles Ramps			2.595 5.325	2422	107	-	-	-	-	-	See Note 2
EB US 2	1 MI W of GF AFB to GF City Limits	341.721	354.724	13.003	26.006	3.251	-	29.257	-	90	44	704	-	-	RP 341.790 4 AR, RP 343.180 3 AR, RP 345.650 4 AR, RP 347.650 4 AR, RP 349.620 2 AR, RP 350.620 4 AR, RP 351.640 4 AR, RP 352.670 4 AR, RP 353.170 2 AR, RP 353.380 2 AR, RP 353.660 4 AR, RP 354.170 2 AR, RP 354.410 3 AR, RP 354.660 2 AR	**A
								Page Subtotals:	119.304	10927	275	-	1472	-	1118	

Indicates exception areas that are NOT to have pavement marking applied.

* Note: Coordinate with Project HEN-6-002(133)336.

** Note: Coordinate with Project NHU-6-002(137)353.

Note 1: 12" White Cross Hatched Line located at GF AFB EB (425 LF) and ND 18 Larimore EB (693 LF).

Note 2: Quantities include Edge line, Crossroad center line and Barrier.

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	7

BASIS OF ESTIMATE

2021 GRAND FORKS DISTRICT NORTHBOUND I-29 PAVEMENT MARKING SUMMARY

LOCATION	FROM REF. POINT	TO REF. POINT	RDWY (MILES)	Main Line Length of			Ramp Length of						Messages			SEE SEC. 10 TABLES A OR B FOR NOTES
				EDGE LINE (MILES)	℄ SKIP (MILES)	TOTAL PAINT (MILES)	8" CHANNEL LINE (LF)	24" LINE (LF)	4" DOTTED LINE (MILES)	(RAMP) EDGE LINE (MILES)	CROSSROAD ℄ & EDGE LINE (MILES)	TOTAL PAINT (MILES)	ARROWS (AR) # OF ARROWS	ARROWS (SF) 16 SF EACH	COMMENTS	
Interchange 118 (Buxton)	-	-	-	-	-	-	912	85	0.064	0.718	0.245	1.028	-	-	-	B
N of Buxton to S of ND 15	118.012	129.539	11.527	23.054	2.882	0.000	-	-	-	-	-	-	-	-	-	B
Interchange 123 (Reynolds)	-	-	-	-	-	-	1092	81	0.077	0.713	0.238	1.028	-	-	-	B
S of ND 15 to Near 32nd Ave	129.539	136.874	7.335	14.670	1.834	14.670	-	-	-	-	-	-	-	-	-	B
Interchange 130 (ND 15)	-	-	-	-	-	-	848	110	0.041	0.697	0.000	0.738	-	-	-	* A & See Note 1
Near 32nd Ave to N of N GF INTR	136.874	147.226	10.352	20.704	2.588	0.000	-	-	-	-	-	-	-	-	-	B
Interchange 138 (32nd Ave)	-	-	-	-	-	-	2522	72	0.056	1.184	0.000	1.240	-	-	-	B
Interchange 140 (Demers Ave)	-	-	-	-	-	-	2114	14	0.081	0.780	0.000	0.862	-	-	-	B
Interchange 141 (US 2)	-	-	-	-	-	-	1582	48	0.050	0.601	0.000	0.601	7	112	NB Off Ramp	B & See Note 1 & 2
Interchange 145 Exit (US 81 - North Grand Forks)	-	-	-	-	-	-	644	58	0.023	0.344	0.000	0.344	-	-	-	B & See Note 1 & 3
Interchange 145 Entrance (US 81 - North Grand Forks)	-	-	-	-	-	-	233	-	0.017	0.350	0.000	0.367	-	-	-	B & See Note 1 & 3
N of N GF INTR to Manvel	147.226	152.337	5.111	10.222	1.278	10.222	-	-	-	-	-	-	-	-	-	B
Interchange 152 (US 81 - Manvel)	-	-	-	-	-	-	1402	94	0.035	0.780	0.000	0.815	-	-	-	See Note 1
Manvel to N of Jct CO RD 18	152.337	155.247	2.910	5.820	0.728	6.548	-	-	-	-	-	-	-	-	-	-
Interchange 157 (Johnstown)	-	-	-	-	-	-	877	72	0.040	0.694	0.234	0.968	-	-	-	-
CO RD 18 to N of Jct ND 54	155.247	161.700	6.453	12.906	1.613	12.906	-	-	-	-	-	-	-	-	-	B
Interchange 161 (ND 54)	-	-	-	-	-	-	552	54	0.057	0.827	0.000	0.884	-	-	-	See Note 1
N of Jct ND 54 N to Forest River	161.700	168.629	6.929	13.858	1.732	15.590	-	-	-	-	-	-	-	-	-	-
Interchange 164 (Lake Ardoch)	-	-	-	-	-	-	857	54	0.040	0.713	0.254	0.967	-	-	-	-
Forest River to S of Jct ND 17	168.629	174.900	6.271	12.542	1.568	12.542	-	-	-	-	-	-	-	-	-	B
Interchange 168 (Minto)	-	-	-	-	-	-	822	60	0.040	0.701	0.308	1.008	-	-	-	-
Interchange 172 (Pulaski)	-	-	-	-	-	-	1220	63	0.075	0.695	0.257	1.027	-	-	-	-
Interchange 176 (ND 17)	-	-	-	-	-	-	997	64	0.068	0.707	0.000	0.775	-	-	-	See Note 1
S of Jct ND 17 to S of Herrick	174.900	183.014	8.114	16.258	2.029	16.258	-	-	-	-	-	-	-	-	-	B
Alexander Henry Rest Area	-	-	-	-	-	-	1383	-	0.098	0.359	0.000	0.457	-	-	-	See Note 4
Interchange 180 (Cashell)	-	-	-	-	-	-	986	68	0.071	0.695	0.180	0.945	-	-	-	-
Interchange 184 (Herrick)	-	-	-	-	-	-	788	20	0.024	0.938	0.653	1.616	-	-	-	-
S of Herrick to N of Jct ND 66	183.014	187.347	4.333	8.666	1.083	9.749	-	-	-	-	-	-	-	-	-	-
Interchange 187 (ND 66)	-	-	-	-	-	-	1572	78	0.052	0.746	0.000	0.797	-	-	-	**A & ***A & See Note 1
N of Jct ND 66 to N Bowesmont INTR	187.347	197.080	9.733	19.466	2.433	21.899	-	-	-	-	-	-	-	-	-	**A
Interchange 191 (Pittsburg)	-	-	-	-	-	-	1944	70	0.040	0.719	0.666	1.424	-	-	-	-
Interchange 193 (Lincoln)	-	-	-	-	-	-	2186	76	0.031	0.699	0.180	0.910	-	-	-	-
Interchange 196 (Bowesmont)	-	-	-	-	-	-	1529	75	0.045	0.703	0.378	1.125	-	-	-	-
N Bowesmont INTR to S of Bathgate	197.080	205.932	8.852	17.704	2.213	17.704	-	-	-	-	-	-	-	-	-	**A & B
Interchange 200 (Carlisle)	-	-	-	-	-	-	1138	68	0.045	0.782	0.230	1.058	-	-	-	-
Interchange 203 (ND 5)	-	-	-	-	-	-	1124	73	0.060	1.128	0.000	1.188	-	-	-	See Note 1
Interchange 208 (Bathgate/McArthur)	-	-	-	-	-	-	1205	70	0.055	0.660	0.522	1.237	-	-	-	-
S of Bathgate to Canadian Border Station	205.932	216.772	10.840	21.680	2.710	21.680	-	-	-	-	-	-	-	-	-	**A & B
Interchange 212 (Neche)	-	-	-	-	-	-	1230	70	0.066	0.654	0.519	1.239	-	-	-	-
Interchange 215 (Pembina)	-	-	-	-	-	-	1151	86	0.064	0.716	0.369	1.149	-	-	-	**A
Historical Site 216	-	-	-	-	-	-	0	0	0.089	0.715	0.000	0.000	-	-	-	**A
Canadian Border Station	-	-	-	-	-	-	4063	230	-	-	-	-	-	-	-	B
Canadian Border Station to Canadian Border	216.772	217.399	0.627	1.254	0.186	1.440	-	-	-	-	-	-	-	-	-	-
				Page Subtotals:		161.208	36,973	1,913	-	-	-	25.798	-	112		

Indicates exception areas that are NOT to have pavement marking applied

* Note: Coordinate with Project IM-6-029(150)130.

** Note: Coordinate with Project H-6-999(048).

*** Note: Coordinate with Project SS-6-066(030)124.

Note 1: Crossroad quantities included on intersecting highways.

Note 2: White, Yellow Edge Lines and 8" Channel Lines to NB/SB Exit and Entrance Ramps are to be painted beginning at the Gore. Refer to Section 120 Sheets 33 and 34.

Note 3: Grooved epoxy begins at the Gore.

Note 4: White edge line (1,107 LF), Yellow edge line (790 LF), Parking lot 4" White (1,075 LF), Parking lot 4" Blue (172 LF), Parking lot 8" Blue (210 LF).

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	8

BASIS OF ESTIMATE

2021 GRAND FORKS DISTRICT SOUTHBOUND I-29 PAVEMENT MARKING SUMMARY

LOCATION	FROM REF. POINT	TO REF. POINT	RDWY (MILES)	Main Line Length of EDGE LINE (MILES)	Main Line Length of ℄ SKIP (MILES)	Main Line Length of TOTAL PAINT (MILES)	Ramp Length of 8" CHANNEL LINE (LF)	Ramp Length of 24" LINE (LF)	Ramp Length of 4" DOTTED LINE (MILES)	Ramp Length of (RAMP) EDGE LINE (MILES)	Ramp Length of CROSSROAD ℄ & EDGE LINE (MILES)	Ramp Length of TOTAL PAINT (MILES)	Messages ARROWS (AR) # OF ARROWS	Messages ARROWS (AR) ARROWS (SF) 16 SF EACH	Messages COMMENTS	SEE SEC. 10 TABLES A OR B FOR NOTES
Canadian Border to RP 203.410	217.517	203.410	14.107	28.214	3.527	28.214	-	-	-	-	-	-	-	-	-	*A & B
Interchange 215 (Pembina)	-	-	-	-	-	-	1334	74	0.043	0.725	0.369	1.138	-	-	-	*A & B
Interchange 212 (Neche)	-	-	-	-	-	-	1182	70	0.053	0.708	0.519	1.280	-	-	-	-
Interchange 208 (Bathgate/McArthur)	-	-	-	-	-	-	1174	70	0.047	0.704	0.522	1.273	-	-	-	-
RP 203.410 to N of Jct ND 66	203.410	187.347	16.063	32.126	4.016	32.126	-	-	-	-	-	-	-	-	-	*A & B
Interchange 203 (US 81)	-	-	-	-	-	-	1348	68	0.051	0.819	0.000	0.870	-	-	-	See Note 1
Interchange 200 (Carlisle)	-	-	-	-	-	-	1290	70	0.047	0.740	0.225	1.012	-	-	-	-
Interchange 196 (Bowesmont)	-	-	-	-	-	-	1755	78	0.046	0.712	0.549	1.307	-	-	-	-
Interchange 193 (Lincoln)	-	-	-	-	-	-	1320	78	0.052	0.707	0.237	0.996	-	-	-	-
Interchange 191 (Pittsburg)	-	-	-	-	-	-	1216	70	0.032	0.821	0.250	1.104	-	-	-	-
N of Jct ND 66 to S of Herrick	187.347	183.014	4.333	8.666	1.083	9.749	-	-	-	-	-	-	-	-	-	*A
Interchange 187 (ND 66)	-	-	-	-	-	-	1833	76	0.056	0.656	0.000	0.713	-	-	-	*A & See Note 1
Interchange 184 (Herrick)	-	-	-	-	-	-	897	36	0.043	2.421	0.653	3.117	-	-	-	See Note 2
S of Herrick to Jct ND 17	183.014	175.792	7.222	14.444	1.806	14.444	-	-	-	-	-	-	-	-	-	B
Interchange 180 (Cashell)	-	-	-	-	-	-	1024	62	0.065	0.768	0.237	1.070	-	-	-	-
Alexander Henry Rest Area	-	-	-	-	-	-	1370	-	0.079	0.934	0.000	1.014	-	-	-	See Note 5
Interchange 176 (ND 17)	-	-	-	-	-	-	1026	58	0.070	0.691	0.000	0.762	-	-	-	See Note 1
Jct ND 17 to Forest River	175.792	168.629	7.163	14.326	1.791	14.326	-	-	-	-	-	-	-	-	-	B
Interchange 172 (Pulaski)	-	-	-	-	-	-	819	65	0.076	0.708	0.264	1.048	-	-	-	-
Interchange 168 (Minto)	-	-	-	-	-	-	1229	59	0.077	0.708	0.258	1.043	-	-	-	-
Interchange 164 (Lake Ardoch)	-	-	-	-	-	-	1039	48	0.073	0.713	0.308	1.094	-	-	-	-
Forest River to N of Jct ND 54	168.629	161.700	6.929	13.858	1.732	13.858	-	-	-	-	-	-	-	-	-	B
N of Jct ND 54 to Manvel	161.700	152.337	9.363	18.726	2.341	18.726	-	-	-	-	-	-	-	-	-	B
Interchange 161 (ND 54)	-	-	-	-	-	-	917	62	0.077	0.399	0.000	0.476	-	-	-	See Note 1
Interchange 157 (Johnstown)	-	-	-	-	-	-	1257	91	0.063	0.698	0.239	1.000	-	-	-	-
Interchange 152 (US 81 - Manvel)	-	-	-	-	-	-	1229	85	0.070	0.800	0.000	0.870	-	-	-	See Note 1
Manvel to N of N GF INTR	152.337	147.226	5.111	10.222	1.278	10.222	-	-	-	-	-	-	-	-	-	B
N of N GF INTR N to Near 32nd Ave	147.226	136.874	10.352	20.704	2.588	0.000	-	-	-	-	-	-	-	-	-	B
Interchange 145 Exit (US 81- North Grand Forks)	-	-	-	-	-	-	452	26	0.034	0.361	0.000	0.034	-	-	-	See Note 1, 3 & 4 & B
Interchange 145 Entrance (US 81- North Grand Forks)	-	-	-	-	-	-	587	-	0.029	0.347	0.000	0.000	-	-	-	See Note 1, 3 & 4 & B
Interchange 141 (US 2)	-	-	-	-	-	-	2614	54	0.092	1.095	0.000	1.095	4	64	SB Off Ramp	See Note 4 & B
Interchange 140 (Demers Ave)	-	-	-	-	-	-	1155	37	0.074	0.921	0.000	0.000	-	-	-	B
Interchange 138 (32nd Ave)	-	-	-	-	-	-	2756	76	0.052	1.682	0.000	0.000	-	-	-	B
Near 32nd Ave to S of ND 15	136.874	129.539	7.335	14.670	1.834	14.670	-	-	-	-	-	-	-	-	-	B
Interchange 130 (ND 15)	-	-	-	-	-	-	842	110	0.039	0.681	0.000	0.720	-	-	-	See Note 1
S of ND 15 to N of Buxton	129.539	118.012	11.527	23.054	2.882	0.000	-	-	-	-	-	-	-	-	-	B
Interchange 123 (Reynolds)	-	-	-	-	-	-	980	77	0.073	0.737	0.222	0.959	-	-	-	B
Interchange 118 (Buxton)	-	-	-	-	-	-	1061	74	0.064	0.703	0.179	0.882	-	-	-	B
				Page Subtotals:		156.335	27167	1507	-	-	-	24.873	-	64		

Indicates exception areas that are NOT to have pavement marking applied

* Note: Coordinate with Project H-6-999(048).

Note 1: Crossroad quantities included on intersecting highways.

Note 2: SB I-29 Interchange 184 (Herrick) includes frontage road S of Herrick.

Note 3: Grooved epoxy begins at the Gore.

Note 4: White, Yellow Edge Lines and 8" Channel Lines to NB/SB Exit and Entrance Ramps are to be painted beginning at the Gore. Refer to Section 120 Sheets 33 and 34.

Note 5: 4" White edge line (2,666 LF) and 8" blue handicap cross hatched (202 LF).

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	9

BASIS OF ESTIMATE

PAVEMENT MARKING EXCLUSION AREAS - ACTIVE PROJECTS (TABLE A)

PROJECT NUMBER AND PCN NUMBER	HIGHWAY AND DIRECTION	LOCATION	RP STATION FROM	RP STATION TO
HEN-6-002(133)336 PCN 22260	US 2	W JCT CTY RD 2 - TURTLE RIVER ST PARK	337.000	337.600
NH-6-002(127)337 PCN 21980	US 2	US 2, NEAR ARVILLA TO GF AFB - WB	337.325	342.696
NH-6-002(128)342 PCN 21981	US 2	US 2, GF AFB TO GF 69TH ST - WB	342.696	353.708
NHU-6-002(137)353 PCN 22680	US 2	US 2, E OF 69TH ST - 55TH ST - EB/WB	353.708	354.703
SS-6-017(055)082 PCN 23080	ND 17	JCT ND 1 TO JCT CMC 5011	82.122	96.973
SS-6-032(066)112 PCN 22974	ND 32	S JCT 200 N TO JCT 45 - W SHARON	112.875	130.732

PAVEMENT MARKING EXCLUSION AREAS - ACTIVE PROJECTS (TABLE A)

PROJECT NUMBER AND PCN NUMBER	HIGHWAY AND DIRECTION	LOCATION	RP STATION FROM	RP STATION TO
SS-6-032(067)130 PCN 22975	ND 32	JCT ND 45 N TO JCT ND 15	130.732	140.714
SS-6-032(068)198 PCN 23081	ND 32	EDINBURG MUNICIPAL TO S JCT ND 66	198.002	205.496
SS-6-066(030)124 PCN 23082	ND 66	S JCT US 81 - ST THOMAS TO RED RIVER	124.950	138.720
H-6-081(104)192 PCN 22595	US 81	N URBAN LIMIT GRAFTON TO N JCT 66	192.414	204.273
NH-6-081(109)206 PCN 23084	US 81	N OF ST THOMAS TO JCT ND 5 - HAMILTON	206.414	218.530
H-6-999(048) PCN 23049	ND 5 & I 29	I-29 190 TO 217, HWY 5 335.1 TO 335.4	VAR	VAR

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	10

BASIS OF ESTIMATE

PAVEMENT MARKING EXCLUSION AREAS - NO PAVEMENT MARKING (TABLE B)

HIGHWAY AND DIRECTION	MARKING LOCATION	MARKING TYPE	LOCATION	LIMITS
ND 5	Centerline	Grooved Tape	Cavalier Municipal	RP 313.257 to RP 314.009
ND 18	Centerline	Grooved Tape	S End of Cavalier N to W Jct ND 5	RP 224.522 to RP 224.991
US 2 EB	Centerline/Edgelines	Grooved Epoxy/ Epoxy	Lakota to RP 295.949	RP 295.468 to RP 295.949
US 2 EB	Centerline/Edgelines	Grooved Epoxy/ Epoxy	RP 295.949 to Mapes X-Over	RP 295.949 to RP 300.969
US 2 EB	Centerline/Edgelines	Grooved Epoxy/ Epoxy	Mapes X-Over to Michigan X-Over	RP 300.969 to RP 305.220
US 2 WB	Centerline/Edgelines	Grooved Epoxy/ Epoxy	Michigan Bypass	RP 306.819 o RP 305.219
US 2 WB	Centerline/Edgelines	Grooved Epoxy/ Epoxy	Michigan Bypass to Mapes X-Over	RP 305.219 to RP 300.764
US 2 WB	Centerline/Edgelines	Grooved Epoxy/ Epoxy	Mapes X-Over to Lakota	RP 300.764 to RP 295.468
US 81	Centerline	Grooved Tape	Grafton - City sec - RR N to E Jct ND 17	RP 190.469 to RP 190.775
US 81	Centerline	Grooved Tape	Grafton - City sec - W Jct ND 17 to BRIDGE	RP 190.993 to RP 191.880
I-29 NB	Centerline/Edgelines	Grooved Tape/ Epoxy	N of Buxton to RP 119.245	RP 118.012 to RP 119.245
I-29 NB	Centerline/Edgelines	Grooved Tape/ Epoxy	RP 119.245 to S of ND 15	RP 119.245 to RP 129.539
I-29 NB	Centerline	Grooved Tape	S of ND 15 to Near 32nd Ave	RP 129.539 to RP 136.874
I-29 NB	Centerline/Edgelines	Grooved Tape/ Epoxy	32nd Ave S to N of N GF Intr	RP 136.874 to RP 147.200
I-29 NB	Centerline	Grooved Tape	N of N GF Intr N to Manvel	RP 147.200 to RP 152.337
I-29 SB	Centerline/Edgelines	Grooved Tape/ Epoxy	RP 119.245 to N of Buxton	RP 119.245 to RP 118.012

PAVEMENT MARKING EXCLUSION AREAS - NO PAVEMENT MARKING (TABLE B)

HIGHWAY AND DIRECTION	MARKING LOCATION	MARKING TYPE	LOCATION	LIMITS
I-29 NB	Centerline	Grooved Tape	Manvel to CO RD 18	RP 152.337 to RP 155.247
I-29 NB	Centerline	Grooved Tape	Co. Rd 18 N to JCT 54	RP 155.247 to RP 161.700
I-29 NB	Centerline	Grooved Tape	RP 168.629 to Pulaski Intr	RP 168.629 to RP 171.760
I-29 NB	Centerline	Grooved Tape	Pulaski Intr to S of Jct ND 17	RP 171.760 to RP 174.906
I-29 NB	Centerline	Grooved Tape	S of Jct ND 17 to RP 183.014	RP 174.906 to RP 183.014
I-29 NB	Centerline	Grooved Tape	N Bowesmont Intr N to Canadian	RP 197.080 to RP 216.772
I-29 NB	Centerline/Edgelines	Grooved Tape	Canadian Border Station to Canadian	RP 216.772 to RP 217.517
I-29 SB	Centerline	Grooved Tape	Canadian Border SB to RP 203.410	RP 217.517 to RP 203.410
I-29 SB	Centerline	Grooved Tape	RP 203.410 to RP N of Jct ND 66	RP 203.410 to RP 187.347
I-29 SB	Centerline	Grooved Tape	RP 183.014 to S of Jct ND 17	RP 183.014 to RP 174.857
I-29 SB	Centerline	Grooved Tape	S of Jct ND 17 to Forest River N	RP 174.857 to RP 168.310
I-29 SB	Centerline	Grooved Tape	Forest River N to Walsh Co Line	RP 168.310 to RP 161.700
I-29 SB	Centerline	Grooved Tape	Walsh Co Line to Manvel	RP 161.700 to RP 152.337
I-29 SB	Centerline	Grooved Tape	Manvel to N of N GF INTR	RP 152.337 to RP 147.200
I-29 SB	Centerline/Edgelines	Grooved Tape/ Epoxy	N of N GF Intr to 32nd Ave S	RP 147.200 to RP 136.874
I-29 SB	Centerline	Grooved Tape	Near 32nd Ave to S of ND 15	RP 136.874 to RP 129.539
I-29 SB	Centerline/Edgelines	Grooved Tape/ Epoxy	S of ND 15 to RP 119.245	RP 129.539 to RP 119.245

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	10	11

BASIS OF ESTIMATE

GRAND FORKS DISTRICT RAILROAD CROSSINGS					
#	Company	DOT #	HIGHWAY	LOCATION	REF. POINT
1	BNSF	062505C	2	GRAND FORKS	355.75
2	BNSF	062535U	81	ARDOCH	175.70
3	BNSF	062562R	17	GRAFTON	127.91
4	BNSF	081297E	2	GRAND FORKS	357.54
5	BNSF	081842U	5	JOLIETTE	332.17
6	BNSF	081855V	66	DRAYTON	137.25
7	BNSF	081918X	17	GRAFTON	127.97
8	DNR	082120R	81	GRAFTON	192.14
9	DNR	082143X	18	HOOPLE	205.71
10	DNR	082157F	66	CRYSTAL	112.81
11	DNR	082178Y	5	CAVALIER	313.27
12	DNR	082219B	32	WALHALLA	231.44
13	BNSF	086609C	35	MICHIGAN	0.35
14	BNSF	086624E	1	LAKOTA	163.06
15	BNSF	086705E	15	NORTHWOOD	109.36
16	BNSF	086840X	15	THOMPSON	132.62
17	BNSF	086877M	18	LARIMORE	163.22
18	BNSF	086911S	32	EDINBURG	198.27
19	BNSF	086932K	17	PARK RIVER	111.86
20	BNSF	103026N	32	FINLEY	117.38
21	BNSF	103042X	32	SHARON	126.61
22	BNSF	103055Y	32	ANETA	136.43
23	DNR	103803T	81	GRAFTON	192.37
24	NPR	695884D	18	CONWAY	185.74
25	NPR	696262E	81	ARDOCH	175.27
26	NPR	697984P	32	W. FORDVILLE	177.79
27	NPR	698012Y	35	WHITMAN	9.67
28	NPR	698024T	1	BROCKET	171.33
29	NPR	698236W	32	W. FORDVILLE	180.49
30	NPR	698227B	17	ADAMS	96.98

Indicates exception areas that do NOT need Railroad Protective Liability Insurance due to active projects.

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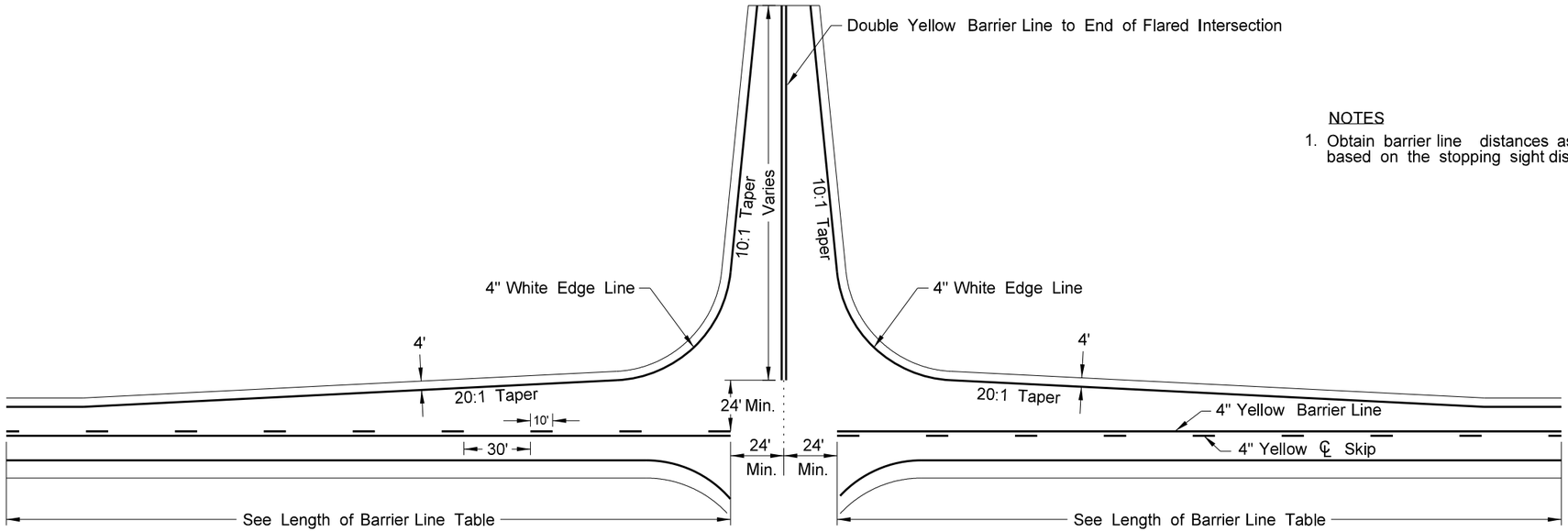
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	20	1



Type A
90° Flared Intersection

NOTES

1. Obtain barrier line distances as per the table. Barrier line distances are based on the stopping sight distance.

Length of Barrier Line									
Speed Limit	30	35	40	45	50	55	60	65	70
Min. Length	200'	250'	305'	360'	425'	495'	570'	645'	730'

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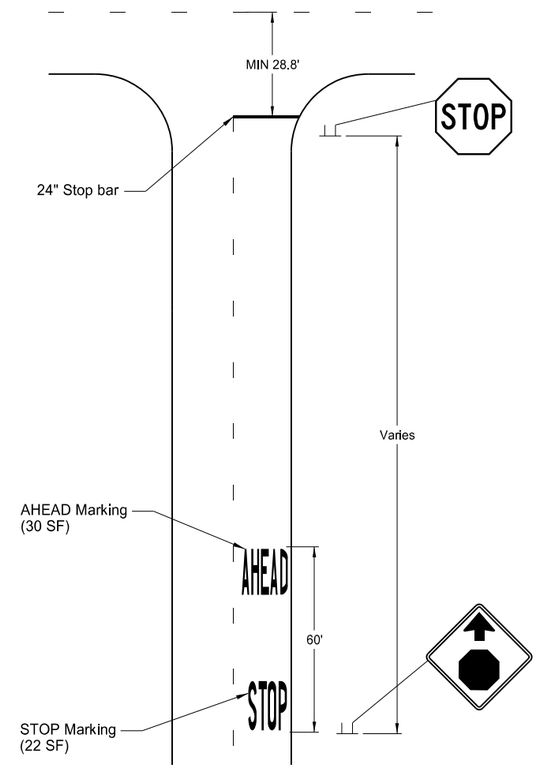
PAVEMENT MARKING DETAIL

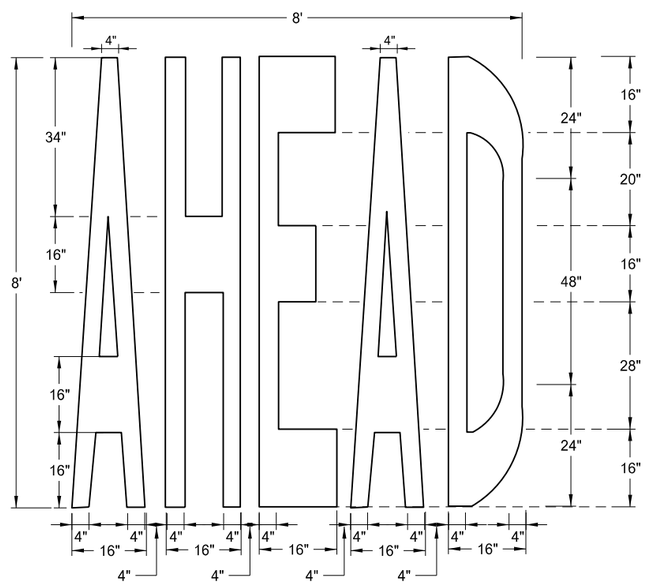
STANDARD INTERSECTION

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(039)	20	2

Pavement Marking Installation Detail



"AHEAD" Pavement Marking Detail



Note: Refer to Standard Drawing D-762-1 for Dimensions of "STOP" Detail

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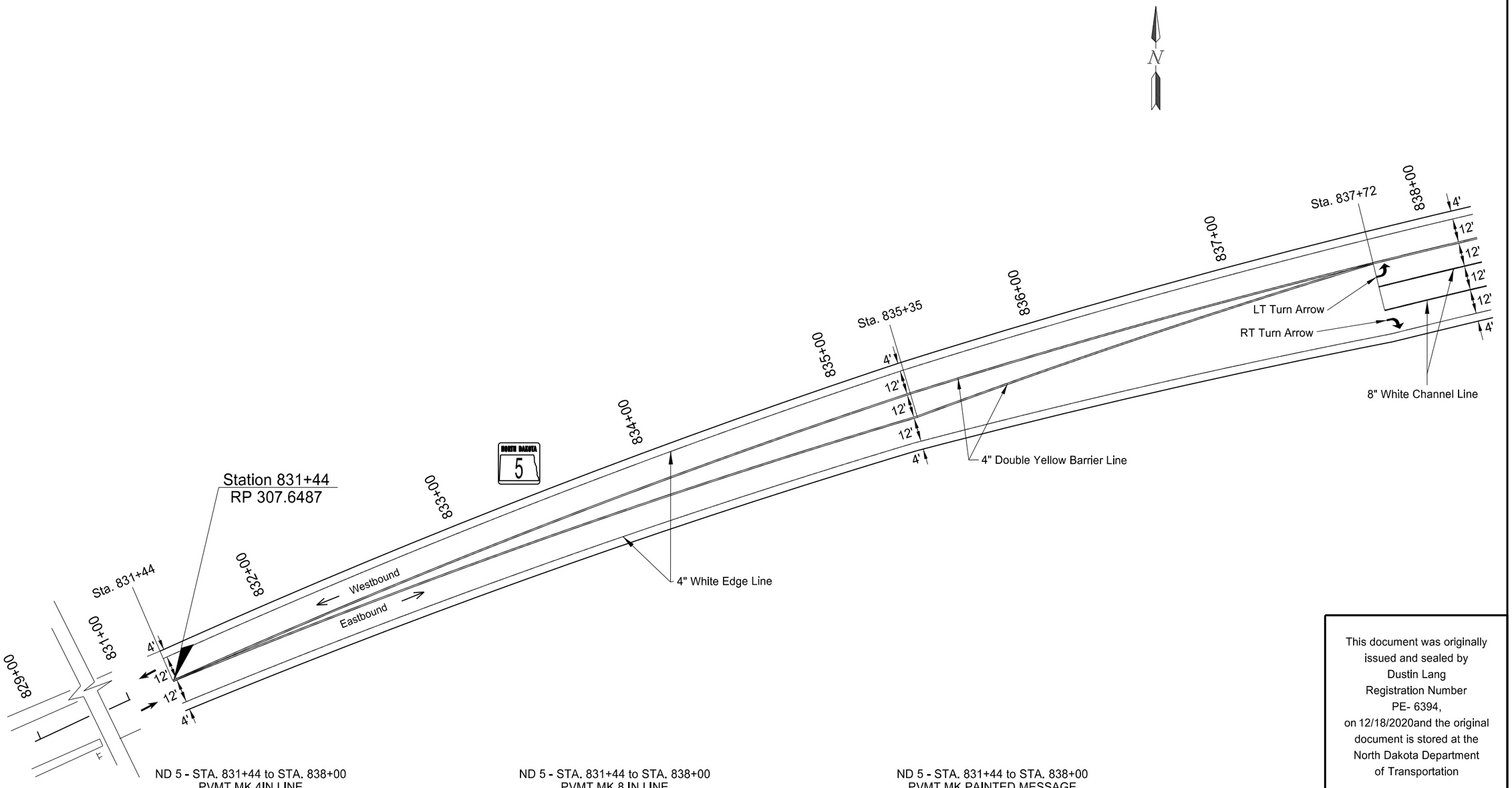
PAVEMENT MARKING DETAIL

STOP & AHEAD
PAVEMENT MESSAGES

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	1



ND 5 - STA. 831+44 to STA. 838+00
PVMT MK 4IN LINE

4" White Edge Line	1,312 LF
4" Double Yellow Barrier Line	2,568 LF
TOTAL	3,880 LF

ND 5 - STA. 831+44 to STA. 838+00
PVMT MK 8 IN LINE

8" White Channel Line	56 LF

ND 5 - STA. 831+44 to STA. 838+00
PVMT MK PAINTED MESSAGE

1 - RT Turn Lane	16 SF
1 - LT Turn Lane	16 SF

*Note: These Quantites have been accounted for in Section 10 Sheet 1

**Note: Drawing not to scale

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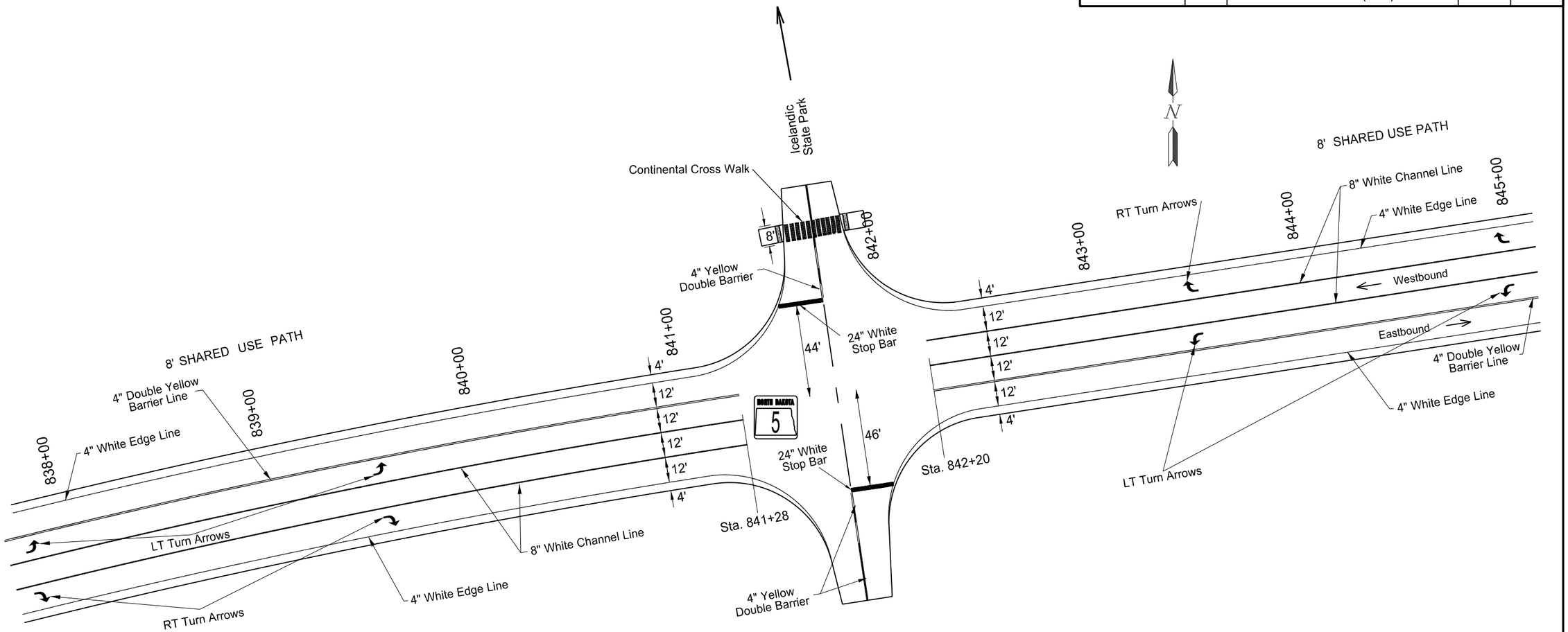
PAVEMENT MARKING LAYOUT

ICELANDIC STATE PARK
ND HWY 5

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	2



ND 5 - STA. 838+00 to STA. 845+00
PVMT MK 4 IN LINE

4" White Edge Line	1,447 LF
4" Double Yellow Barrier Line	1,448 LF
TOTAL	2,895 LF

ND 5 - STA. 838+00 to STA. 845+00
PVMT MK 24 IN LINE

24" Stop Bar	42 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

Pembina County Historical Society

ND 5 - STA. 838+00 to STA. 845+00
PVMT MK PAINTED MESSAGE

4 - LT Turn Arrow	64 SF
4 - RT Turn Arrow	64 SF
12 - 2' x 8' Continental Cross Walks	192 SF
TOTAL	320 SF

ND 5 - STA. 838+00 to STA. 845+00
PVMT MK 8 IN LINE

8" White Channel Line	1,216 LF

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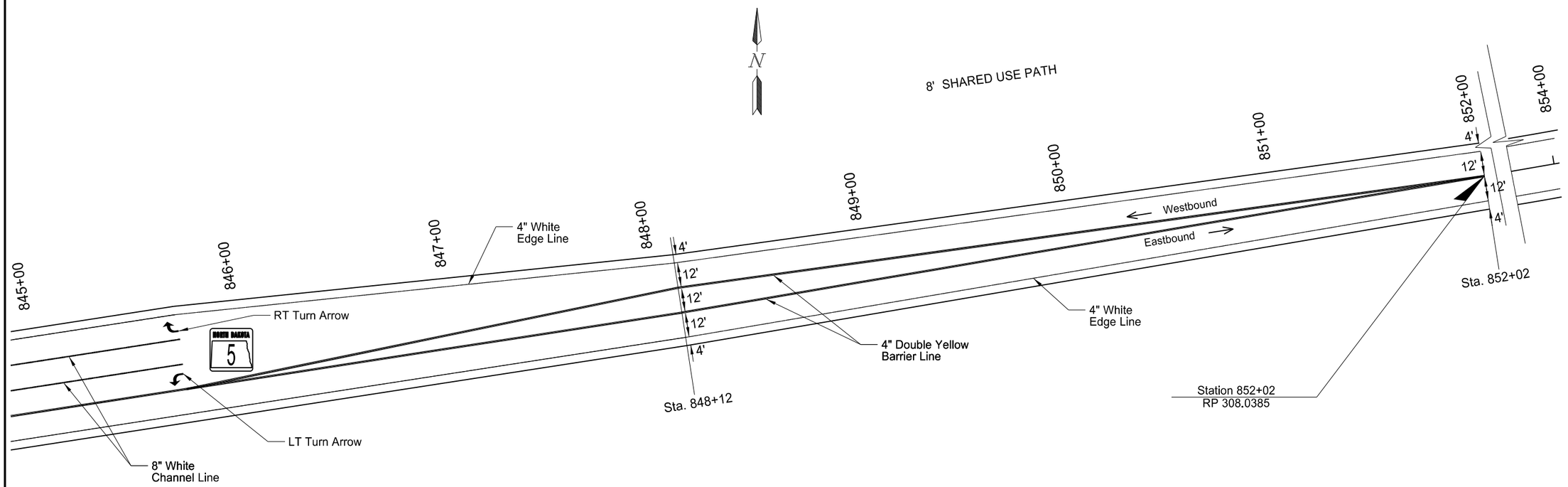
PAVEMENT MARKING LAYOUT

ICELANDIC STATE PARK
ND HWY 5

**Note: Drawing not to scale

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	3



ND 5 - STA. 845+00 to STA. 852+00
PVMT MK 4IN LINE

4" White Edge Line	1,404 LF
4" Double Yellow Barrier Line	2,664 LF
TOTAL	4,068 LF

ND 5 - STA. 845+00 to STA. 852+00
PVMT MK 4IN LINE

8" White Channel Line	144 LF

ND 5 - STA. 845+00 to STA. 852+00
PVMT MK PAINTED MESSAGE

1 - RT Turn Arrow	16 SF
1 - LT Turn Arrow	16 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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PAVEMENT MARKING DETAIL

ICELANDIC STATE PARK
ND HWY 5

**Note: Drawing not to scale

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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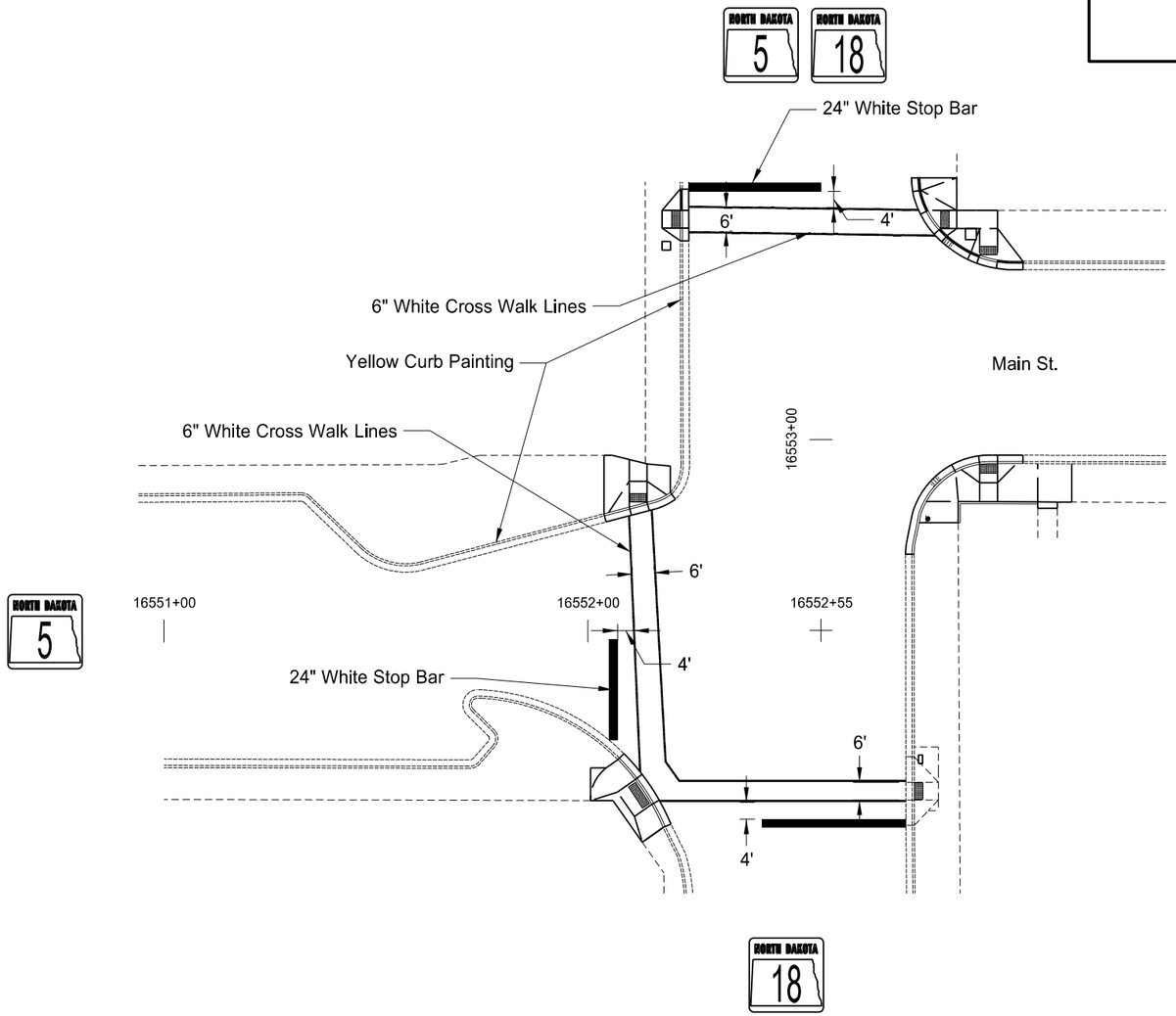

ND 5 & ND 18 - CAVALIER MUNICIPAL
PVMT MK PAINTED 6" LINE

6" White Cross Walk Lines	350 LF

ND 5 & ND 18 - CAVALIER MUNICIPAL
PVMT MK PAINTED 24" LINE

24" White Stop Bars	108 LF

*Note: These Quantities have been accounted for in Section 10 Sheet(s) 1 & 2

**Note: Drawing Not to Scale

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PAVEMENT MARKING LAYOUT

CAVALIER MUNICIPAL
ND HWY 5 & ND HWY 18

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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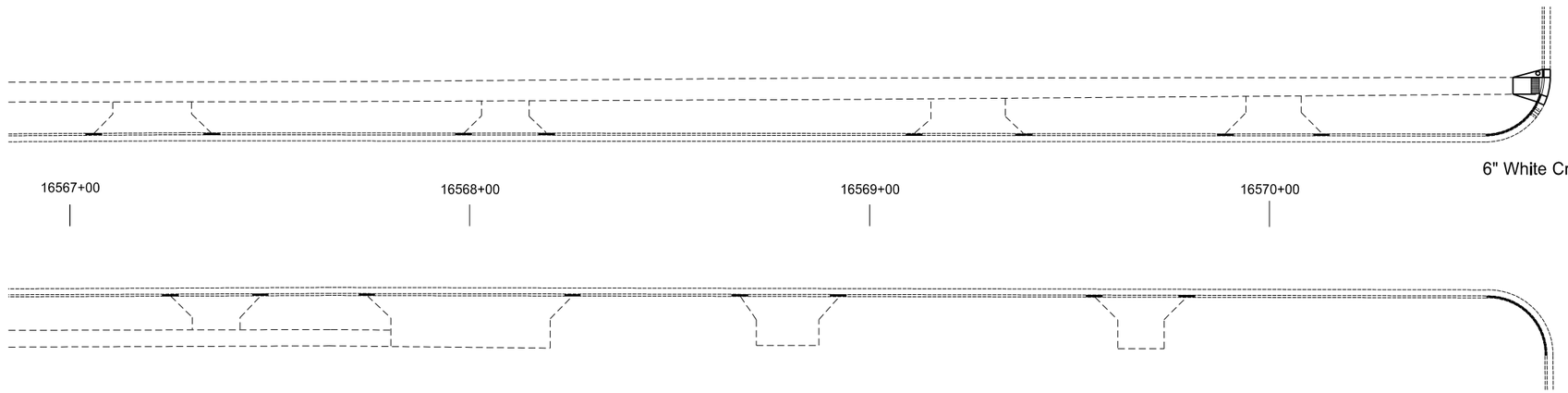

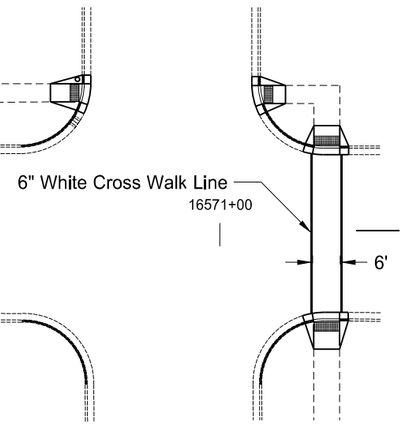

ND 5 - CAVALIER MUNICIPAL
PVMT MK PAINTED 6IN LINE

6" White Cross Walk Lines	150 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

**Note: Drawing Not to Scale

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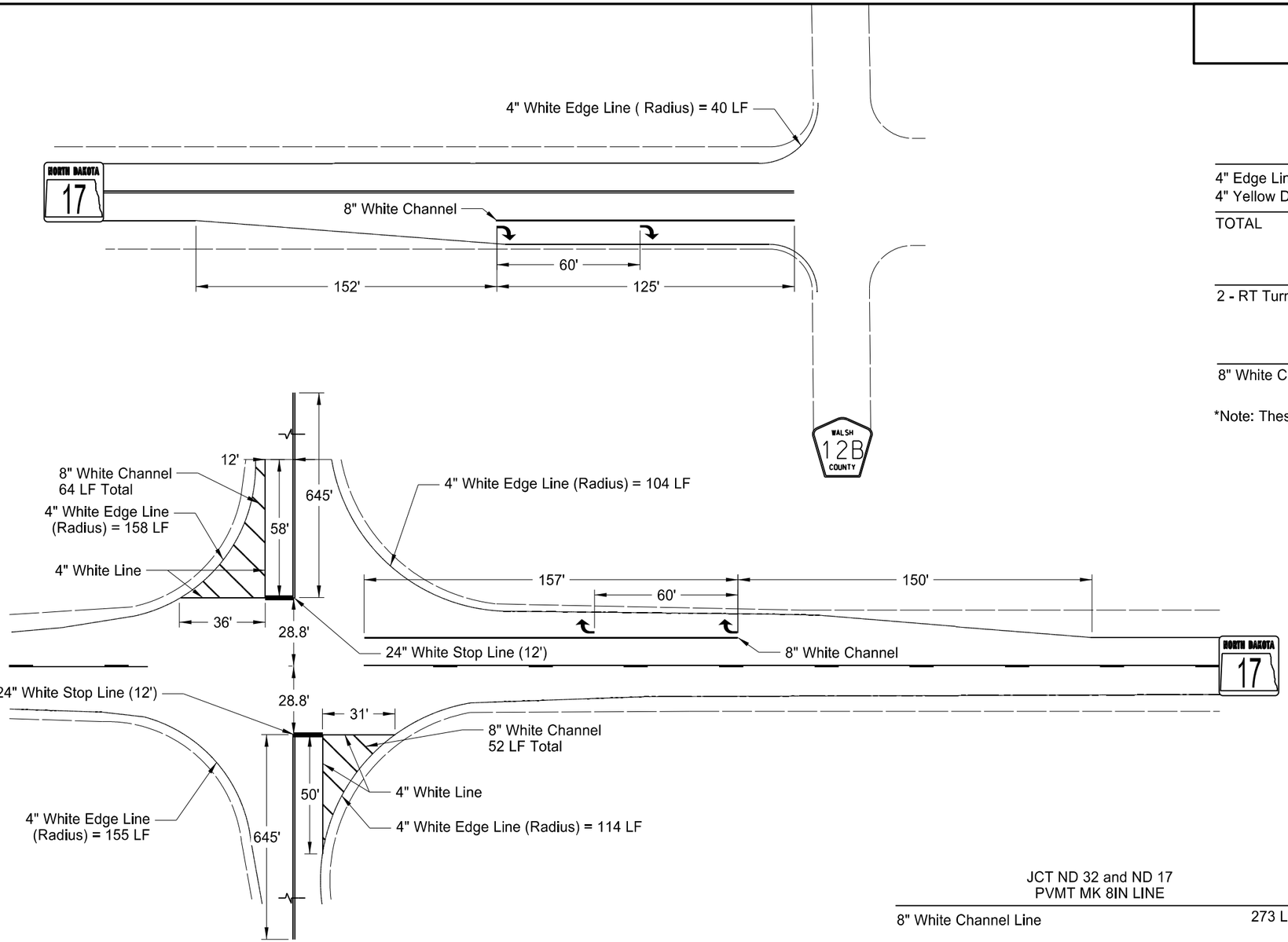
PAVEMENT MARKING LAYOUT

CAVALIER MUNICIPAL
ND HWY 5

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	6



JCT ND 17 and Walsh 12B
PVMT MK 4IN LINE

4" Edge Line - Around Radii	71 LF
4" Yellow Double Barrier	250 LF
TOTAL	321 LF

JCT ND 17 and Walsh 12B
PVMT MK PAINTED MESSAGE

2 - RT Turn Arrows	32 SF

JCT ND 17 and Walsh 12B
PVMT MK 8IN LINE

8" White Channel Line	125 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

N

JCT ND 32 and ND 17
PVMT MK 4IN LINE

4" Edge Line - Around Radii	531 LF
4" Edge Line - Hatched Area	175 LF
4" Yellow Double Barrier	2,580 LF
TOTAL	3,832 LF

*Note: These Quantities have been accounted for in Section 10 Sheet(s) 1 & 2

JCT ND 32 and ND 17
PVMT MK 8IN LINE

8" White Channel Line	273 LF

JCT ND 32 and ND 17
PVMT MK 24IN LINE

24" Stop Bar	24 LF

JCT ND 32 and ND 17
PVMT MK PAINTED MESSAGE

2 - RT Turn Arrows	32 SF

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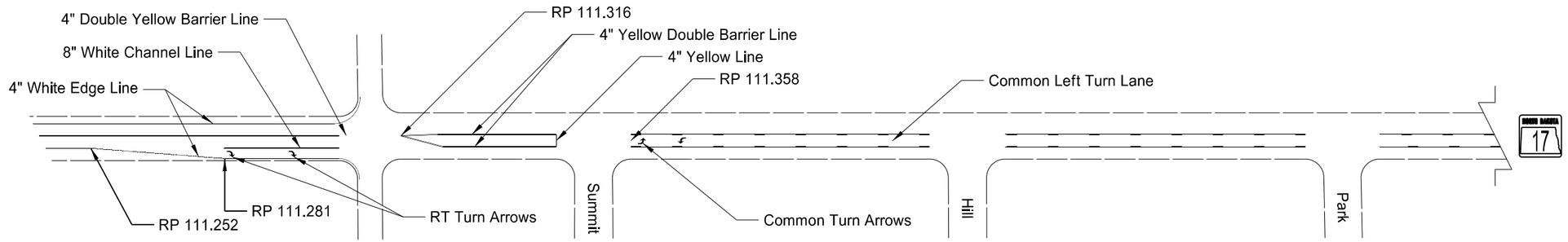
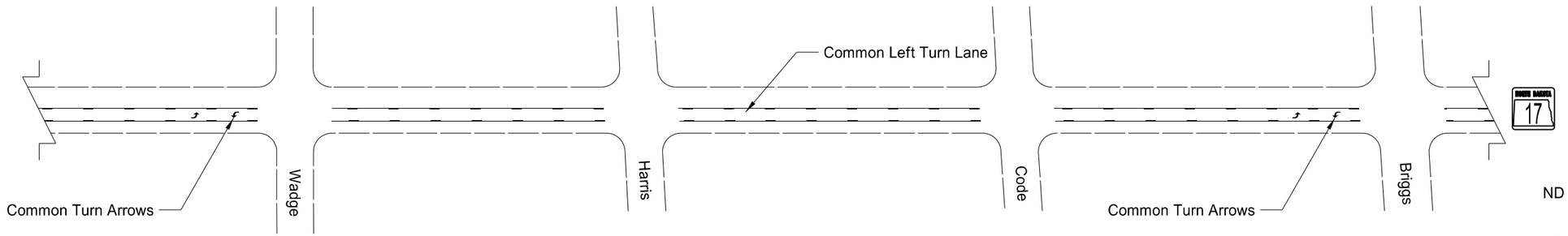
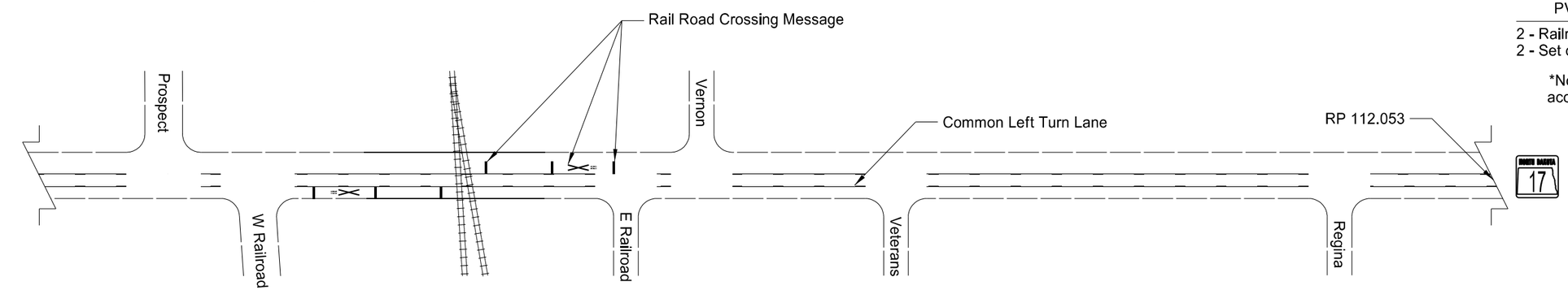
PAVEMENT MARKING LAYOUT

JCT ND HWY 17 & ND HWY 32
JCT ND HWY 17 & Co. Rd. 12 B

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	7







ND 17 - PARK RIVER MUNICIPAL
Rail Road Crossings
RP 111.860
PVMT MK PAINTED MESSAGE

2 - Railroad Messages	121 SF
2 - Set of Three 12' Bands	144 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

ND 17 - PARK RIVER MUNICIPAL
RP 111.252 to RP 111.344
PVMT MK 4IN LINE

4" White Edge Line	549 LF
4" Yellow Double Barrier Line	1,149 LF
4" Yellow Single Barrier Line	12 LF
TOTAL	1,710 LF

ND 17 - PARK RIVER MUNICIPAL
Two-Way Left Turn Channelization
RP 111.358 to RP 112.053
PVMT MK 4IN LINE

4" Yellow Single Barrier Line	5,684 LF
4" Yellow ℄ Skips - 10' Line / 30' Skips	1,421 LF
TOTAL	7,105 LF

ND 17 - PARK RIVER MUNICIPAL
RP 111.252 to RP 111.344
PVMT MK 8IN LINE

8" White Channel Line	122 LF

ND 17 - PARK RIVER MUNICIPAL
Two-Way Left Turn Channelization
RP 111.358 to RP 112.053
PVMT MK PAINTED MESSAGE

6 - Common Turn Lane Arrows	96 SF
2 - RT Turn Arrows	32 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

**Note: Drawing Not to Scale

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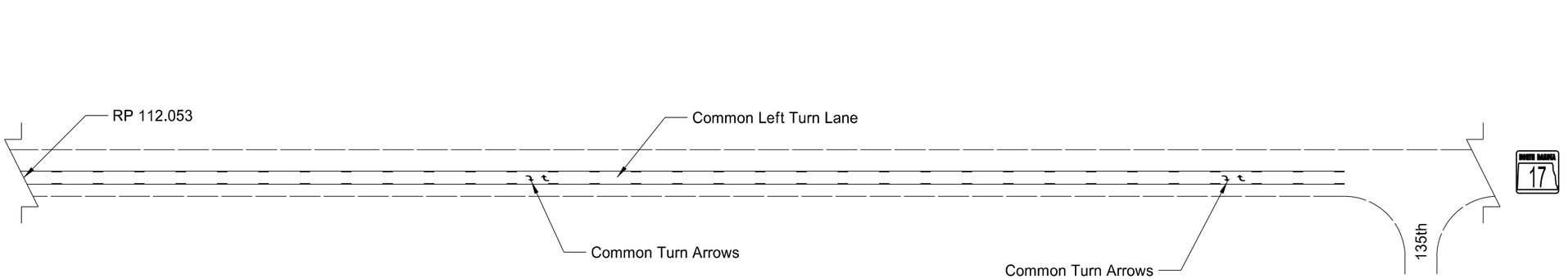
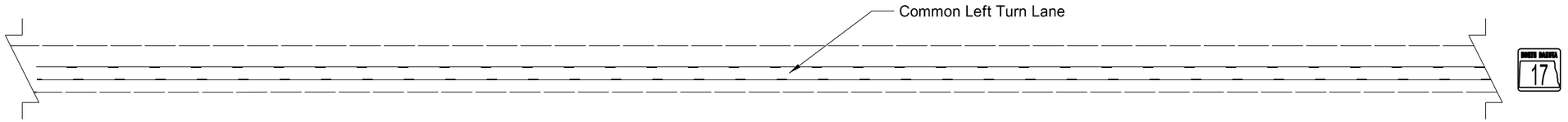
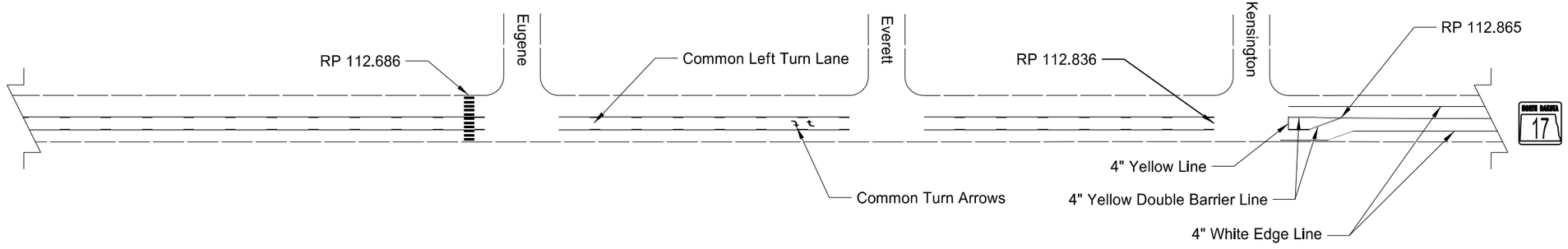
PAVEMENT MARKING LAYOUT

PARK RIVER MUNICIPAL
ND HWY 17

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	8







ND 17 - PARK RIVER MUNICIPAL
Two-Way Left Turn Channelization
RP 112.053 to RP 112.836
PVMT MK 4IN LINE

4" Yellow Single Barrier Line	7,678 LF
4" Yellow ℄ Skip - 10' Line / 30' Skips	1,919 LF
TOTAL	9,597 LF

ND 17 - PARK RIVER MUNICIPAL
RP 112.840 to RP 112.865
PVMT MK 4IN LINE

4" White Edge Line	180 LF
4" Yellow Double Barrier Line	528 LF
4" Yellow Single Barrier Line	12 LF
TOTAL	720 LF

ND 17 - PARK RIVER MUNICIPAL
RP 112.840 to RP 112.865
PVMT MK PAINTED MESSAGE

6 - Common Turn Lane Arrows	96 SF

ND 17 - PARK RIVER MUNICIPAL
Continental Crosswalk
RP 112.686
PVMT MK PAINTED MESSAGE

11 - 2' x 10' Continental Cross Walk Bars	220 SF

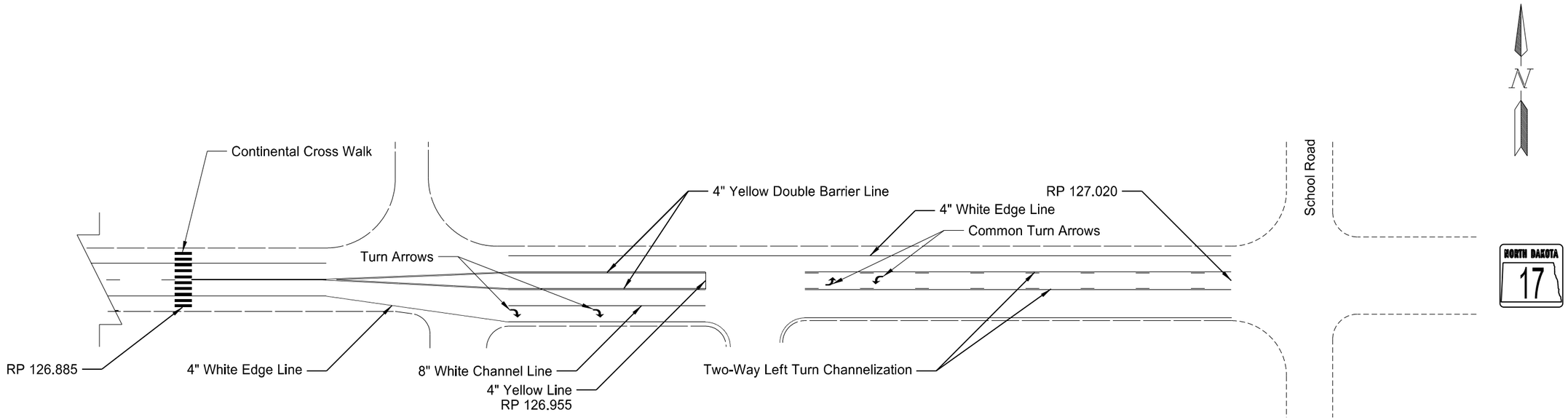
*Note: These Quantities have been accounted for in Section 10 Sheet 1

**Note: Drawing Not to Scale

PAVEMENT MARKING LAYOUT

PARK RIVER MUNICIPAL
ND HWY 17

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	9



ND 17 - GRAFTON MUNICIPAL
Two-Way Left Turn Channelization
RP 126.965 to RP 127.020
PVMT MK 4IN LINE

4" Yellow Single Barrier Line	584 LF
4" Yellow 10' Line / 30' Skip	150 LF
TOTAL	734 LF

ND 17 - GRAFTON MUNICIPAL
RP 126.885 to RP 127.020
PVMT MK 4IN LINE

4" White Edge Line	1,305 LF
4" Yellow Double Barrier Line	1,296 LF
4" Yellow Line	12 LF
TOTAL	2,613 LF

ND 17 - GRAFTON MUNICIPAL
Two-Way Left Turn Channelization
RP 126.965 to RP 127.020
PVMT MK 8IN LINE

8" White Channel Line	140 LF

ND 17 - GRAFTON MUNICIPAL
PVMT PAINTED MESSAGE

4 - Common Turn Lane Arrows	64 SF

ND 17 - GRAFTON MUNICIPAL
RP 126.885 Continental Cross Walk
PVMT PAINTED MESSAGE

10 - 2' x 12' Continental Cross Walk Bars	240 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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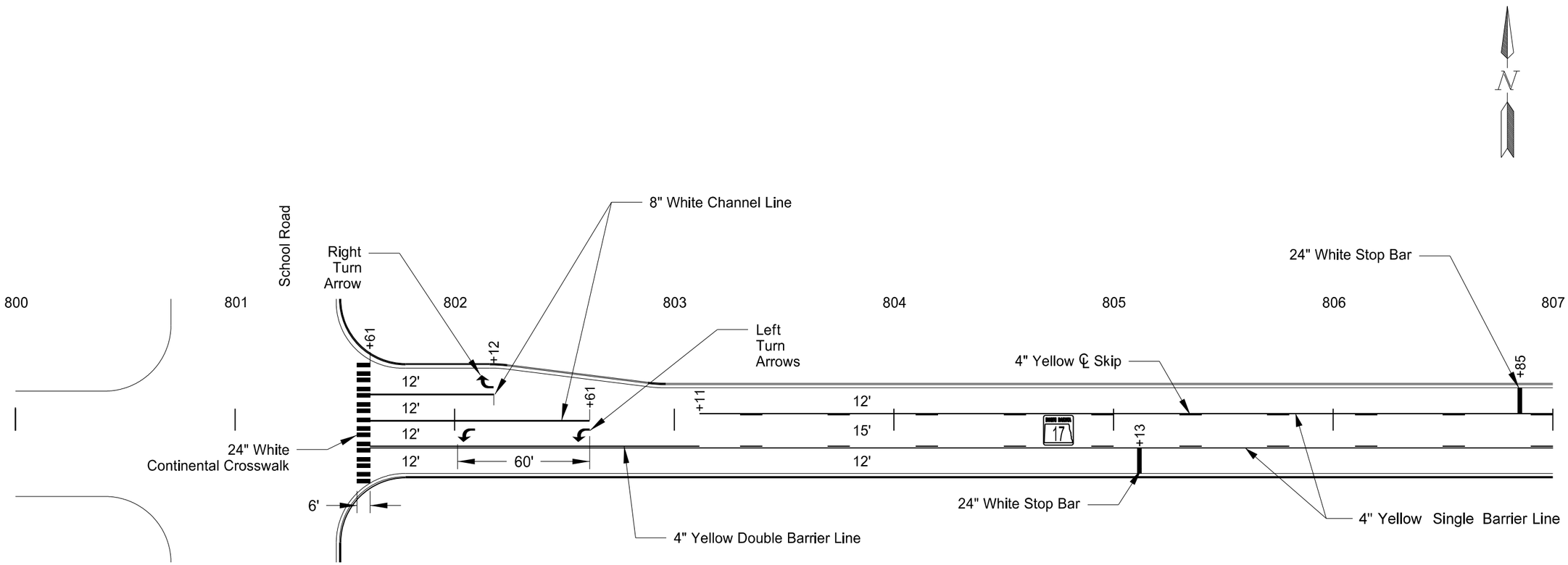
PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL
ND HWY 17

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	10



GRAFTON MUNICIPAL
PVMT MK PAINTED 4IN LINE

4" Yellow 10' Line / 30' Skip	200 LF
4" Yellow Double Barrier Line	300 LF
4" Single Yellow Barrier Line	778 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 24IN LINE

24" White Stop Bar	24 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 8IN LINE

8" White Channel Line	156 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED MESSAGE

16 - 2' x 6' Continental Cross Walk Bars	192 SF

GRAFTON MUNICIPAL
PVMT MK PAINTED MESSAGE

2 - LT Turn Arrows	32 SF
1 - RT Turn Arrow	16 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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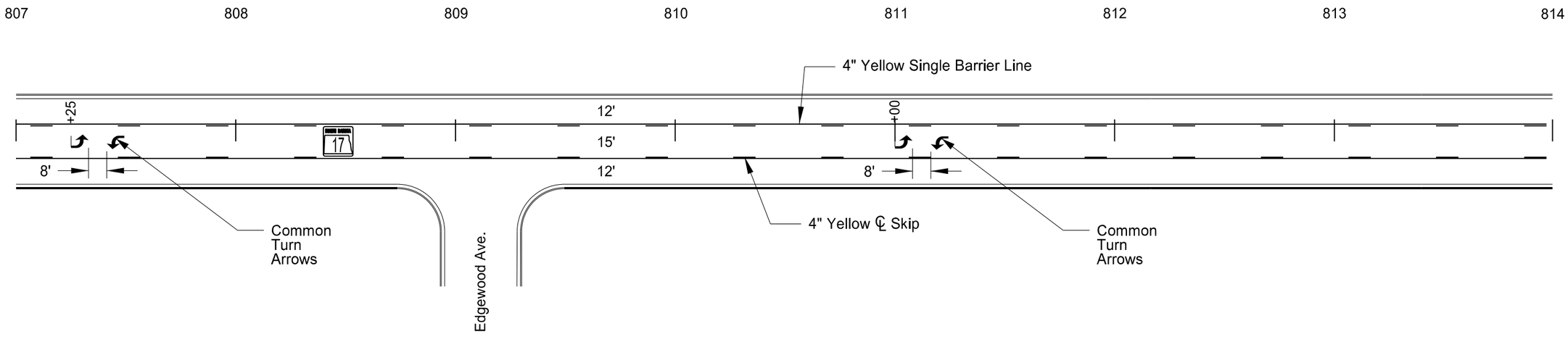
PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	11



GRAFTON MUNICIPAL
PVMT MK PAINTED 4IN LINE

4" Yellow Skips 10' Line / 30' Gap	360 LF
4" Single Yellow Barrier Line	1,400 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED MESSAGE

4 - LT Turn Arrows	64 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL

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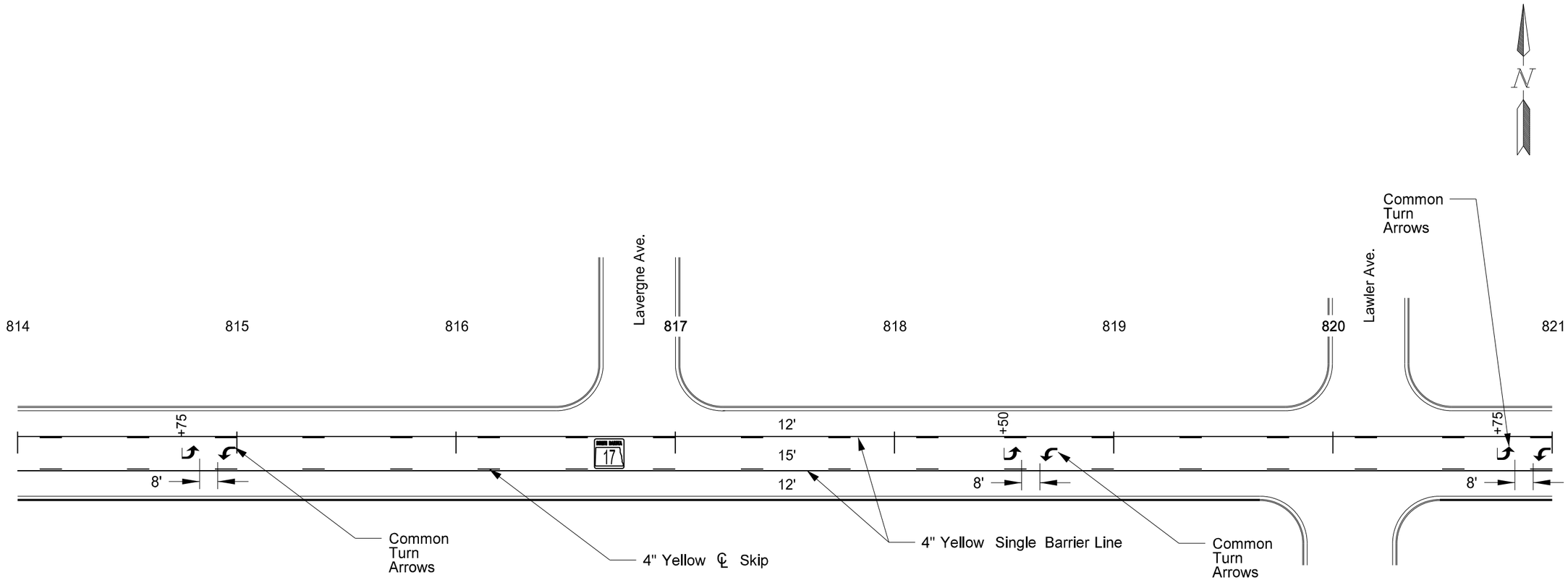
	ND	HES-6-999(049)	120	12



GRAFTON MUNICIPAL
PVMT MK PAINTED 4IN LINE

4" Yellow Skips 10' Line / 30' Gap	360 LF
4" Single Yellow Barrier Line	1,400 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED MESSAGE

6 - LT Turn Arrows	96 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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PAVEMENT MARKING LAYOUR

GRAFTON MUNICIPAL

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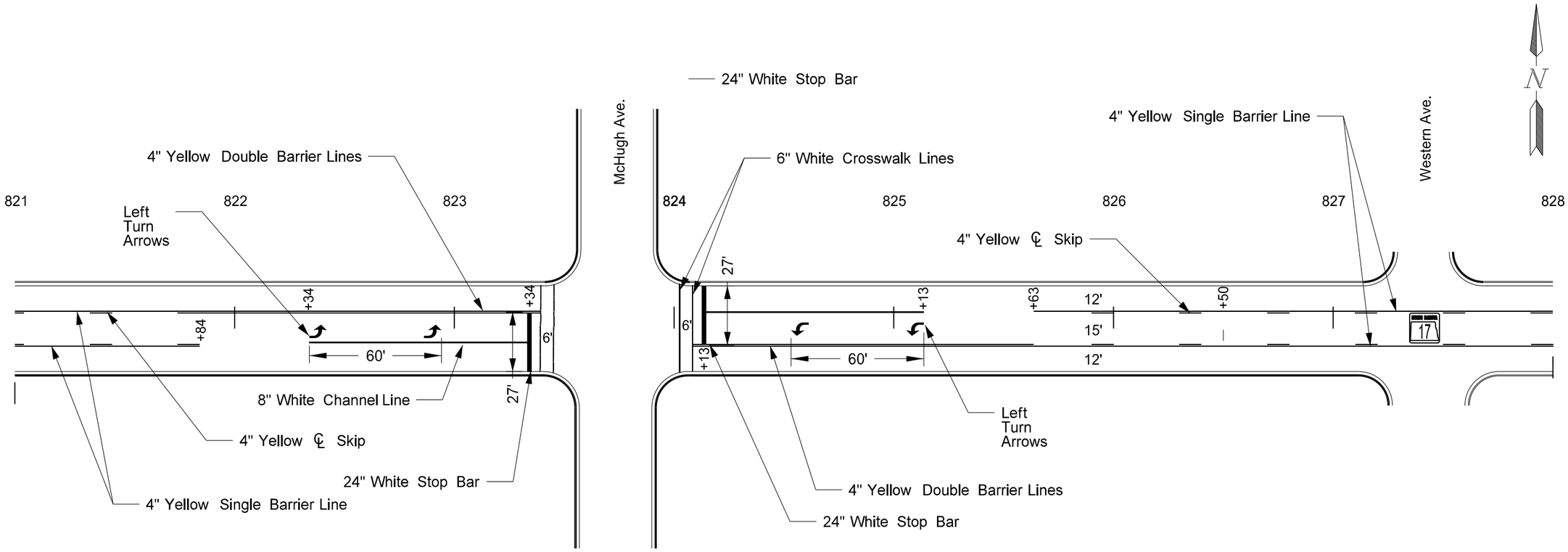


GRAFTON MUNICIPAL
PVMT MK PAINTED 4IN LINE

4" Yellow 10' Line / 30' Skip	170 LF
4" Yellow Double Barrier Line	620 LF
4" Single Yellow Barrier Line	640 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 6IN LINE

6" White Cross Walk Lines	158 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 8IN LINE

8" White Channel Line	200 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 24IN LINE

24" White Stop Bar	54 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED MESSAGE

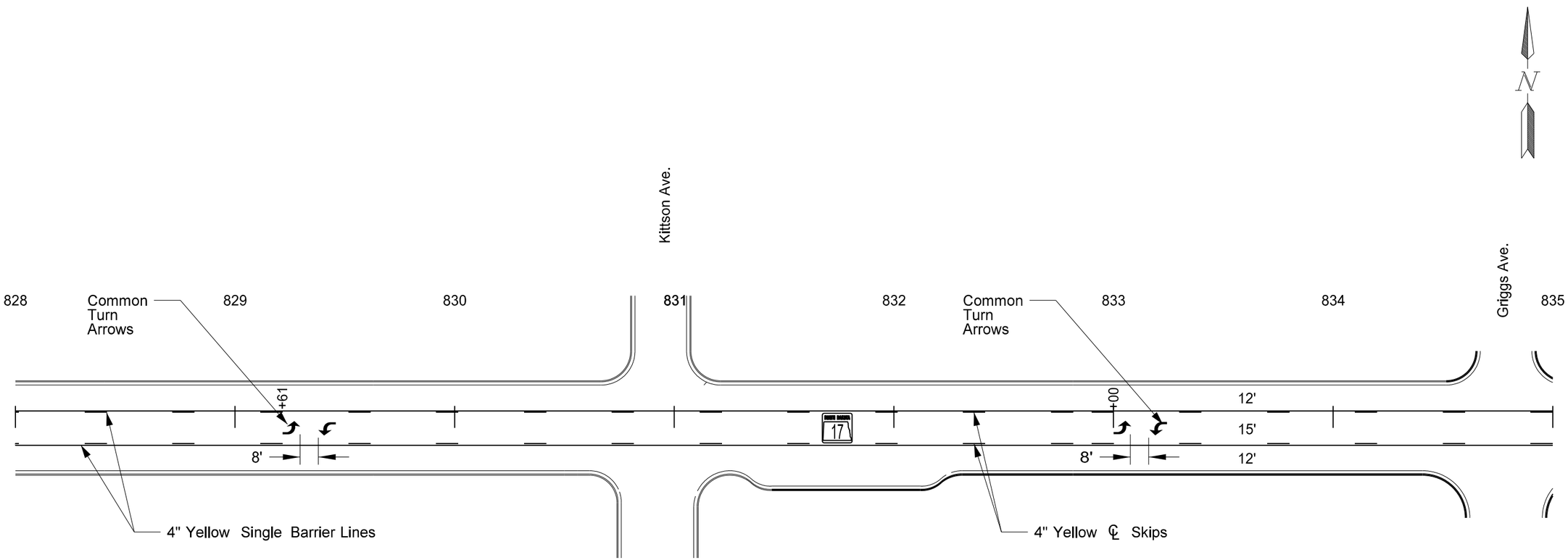
4 - LT Turn Arrows	64 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	14



GRAFTON MUNICIPAL
PVMT MK PAINTED 4IN LINE

4" Yellow Skips 10' Line / 30' Gap	360 LF
4" Single Yellow Barrier Line	1,400 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED MESSAGE

4 - LT Turn Arrows	64 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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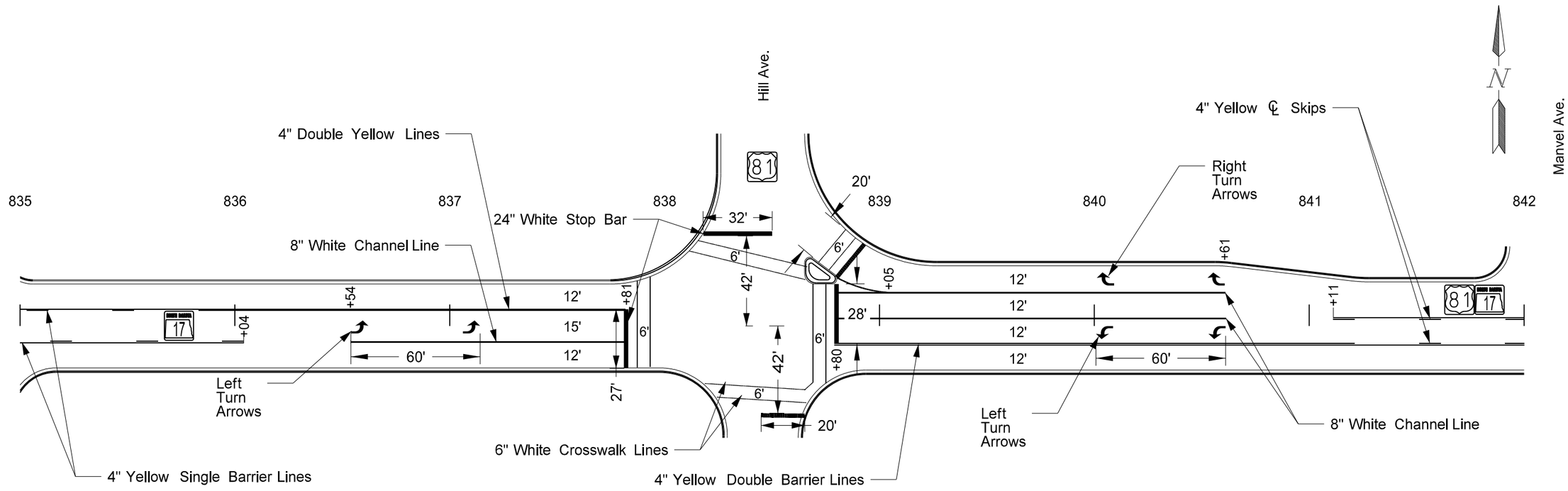
PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	15



GRAFTON MUNICIPAL
PVMT MK PAINTED 4IN LINE

4" Yellow 10' Line / 30' Skip	110 LF
4" Yellow Double Barrier Line	863 LF
4" Single Yellow Barrier Line	375 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED MESSAGE

4 - LT Turn Arrows	64 SF
2 - RT Turn Arrows	32 SF

GRAFTON MUNICIPAL
PVMT MK PAINTED 6IN LINE

6" White Cross Walk Lines	377 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 24IN LINE

24" White Stop Bar	127 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 8IN LINE

8" White Channel Line	515 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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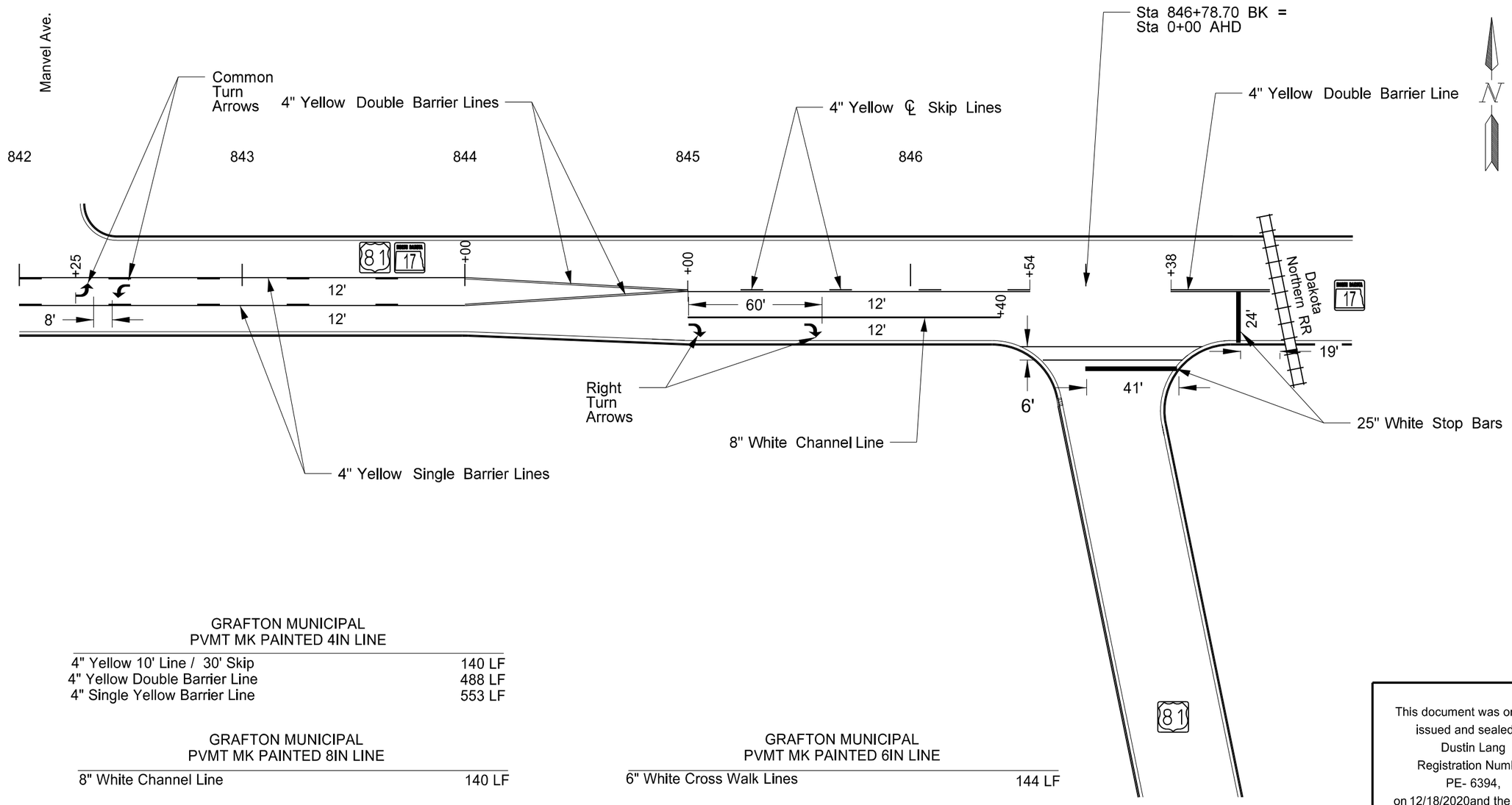
Permanent Pavement Marking
Sta 835+00 to Sta 842+00

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	16



GRAFTON MUNICIPAL
PVMT MK PAINTED 4IN LINE

4" Yellow 10' Line / 30' Skip	140 LF
4" Yellow Double Barrier Line	488 LF
4" Single Yellow Barrier Line	553 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 8IN LINE

8" White Channel Line	140 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED 6IN LINE

6" White Cross Walk Lines	144 LF

GRAFTON MUNICIPAL
PVMT MK PAINTED MESSAGE

2 - LT Turn Arrows	32 SF
2 - RT Turn Arrows	32 SF

GRAFTON MUNICIPAL
PVMT MK PAINTED 24IN LINE

24" White Stop Bar	65 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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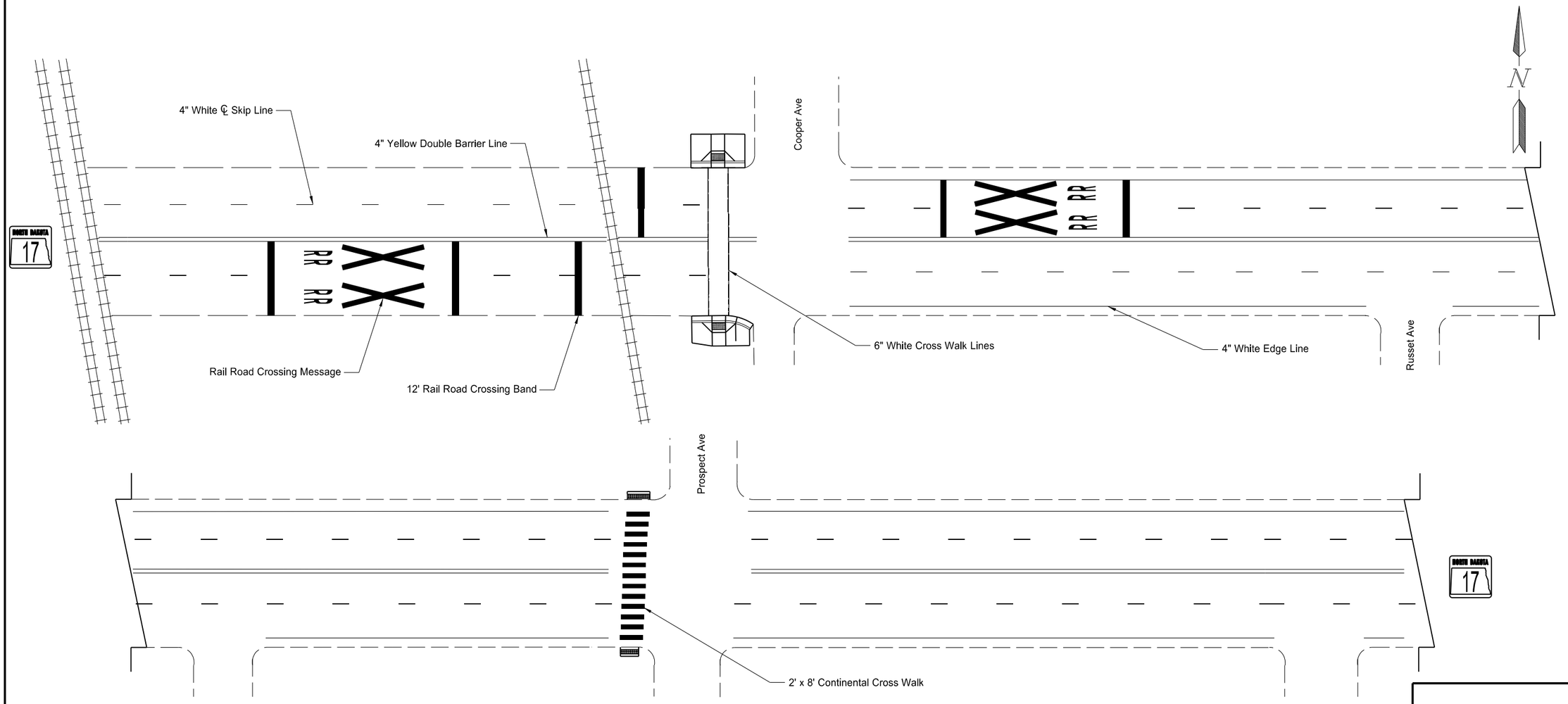
PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	17



ND 17 - GRAFTON MUNICIPAL
RP 127.922 to RP 128.225
PVMT MK 4IN LINE

4" White 10' Line / 30' Skips	730 LF
4" White Edgeline	2,810 LF
4" Yellow Double Barrier Line	2,810 LF
TOTAL	6,350 LF

ND 17 - GRAFTON MUNICIPAL
RP 127.922 to RP 128.225
Rail Road Crossings
PVMT MK PAINTED MESSAGE

4 - Rail Roal Messges	242 SF
4 - Set of Three 12' Bands	288 SF

ND 17 - GRAFTON MUNICIPAL
RP 127.922 to RP 128.225
PVMT MK 6" LINE

6" White Cross Walk Lines	88 LF

ND 17 - GRAFTON MUNICIPAL
RP 127.922 to RP 128.225
Continental Cross Walk
PVMT MK PAINTED MESSAGE

14 - 2' x 8' Continental Cross Walks	224 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1
**Note: Drawing Not to Scale

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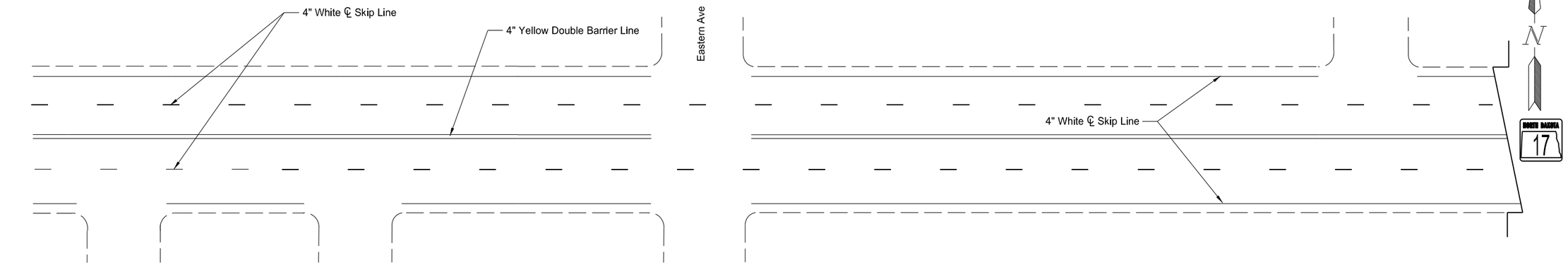
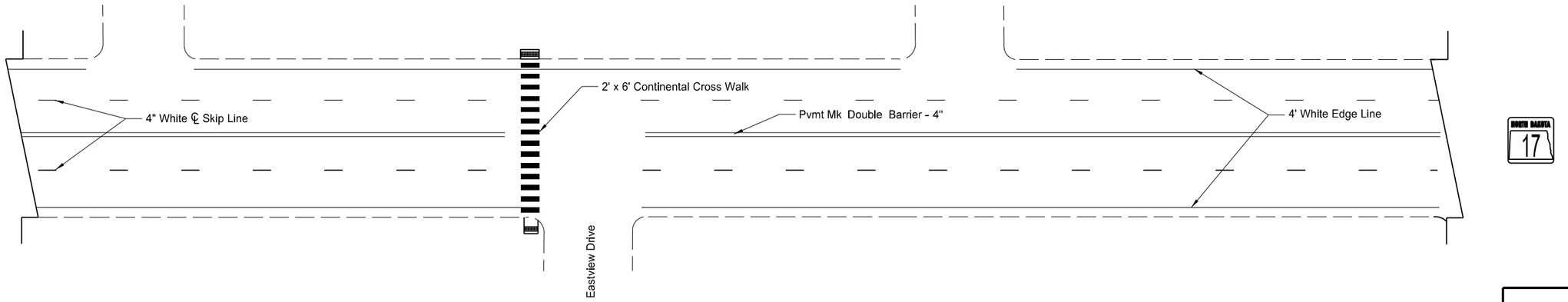
PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL
ND 17

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	18





ND 17 - GRAFTON MUNICIPAL
RP 128.225 to RP 128.882
PVMT MK 4IN LINE

4" White 10' Line / 30' Skips	880 LF
4" White Edgeline	2,888 LF
4" Yellow Double Barrier Line	3,098 LF
TOTAL	6,866 LF

ND 17 - GRAFTON MUNICIPAL
RP 128.225 to RP 128.882
Continental Cross Walk
PVMT MK PAINTED MESSAGE

14 - 2' x 6' Continental Cross Walks	168 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

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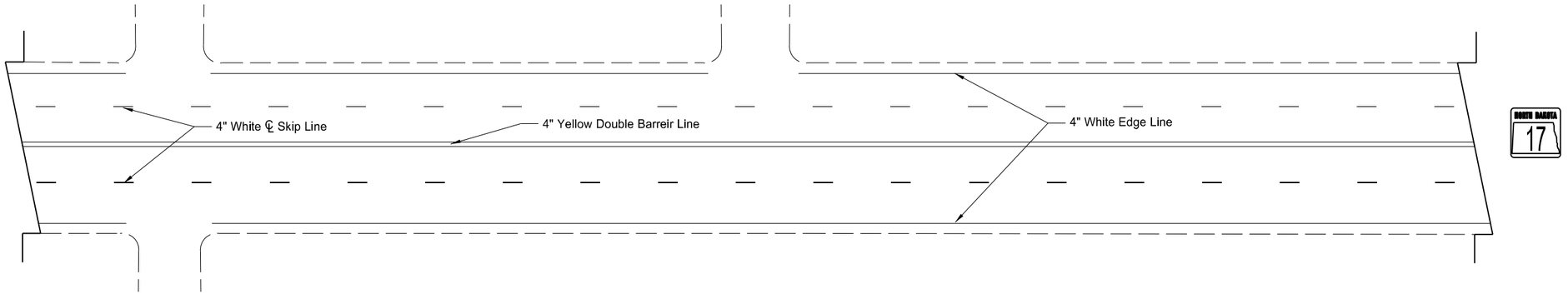
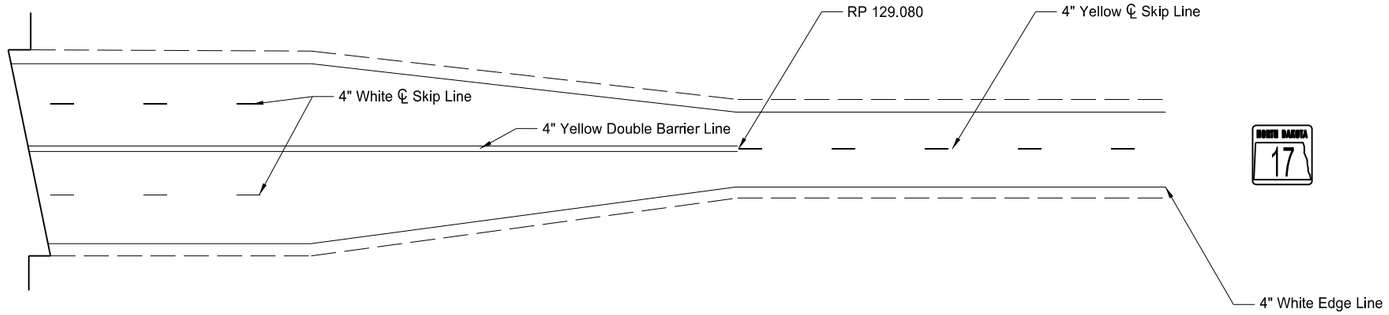
PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL
ND 17

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	19





ND 17 - GRAFTON MUNICIPAL
RP 128.882 to RP 129.080
PVMT MK 4IN LINE

4" White 10' Line / 30' Skips	440 LF
4" White Edgeline	2,340 LF
4" Yellow Double Barrier Line	2,104 LF
4" Yellow 10' Line / 30' Skips	50 LF
TOTAL	4,934 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 1

**Note: Drawing Not to Scale

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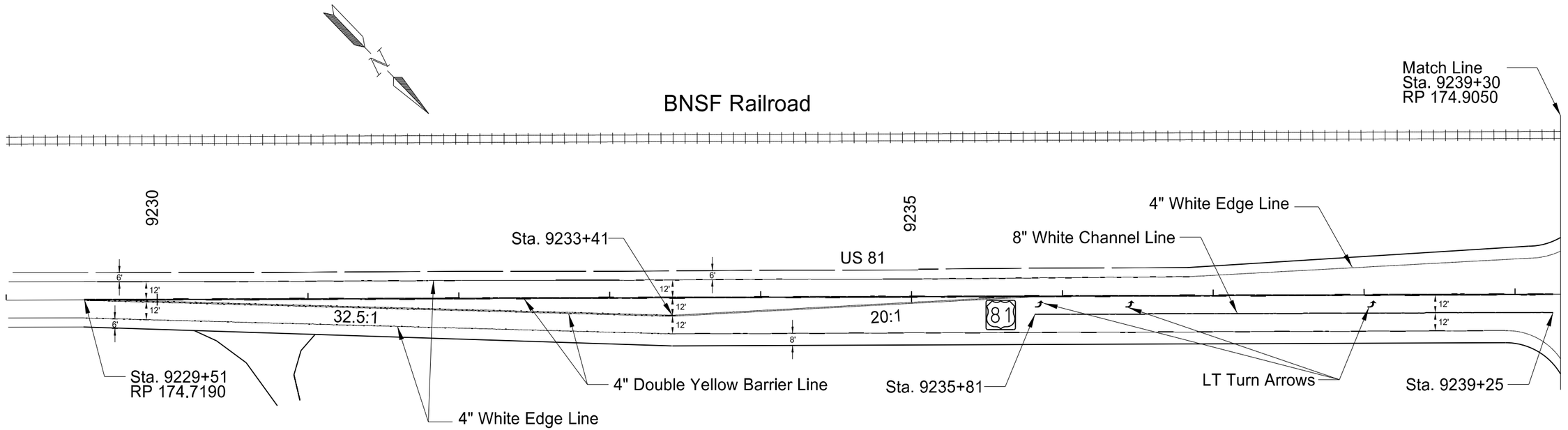
PAVEMENT MARKING LAYOUT

GRAFTON MUNICIPAL
ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	120	20



US 81 - RP 174.719 TO RP 174.905
PVMT MK 4IN LINE

4" White Edge Line	1,965 LF
4" Double Yellow Barrier Line	3,206 LF
TOTAL	5,225 LF

US 81 - RP 174.719 TO RP 174.905
PVMT MK PAINTED MESSAGE

3 - LT Turn Arrow	48 SF

US 81 - RP 174.719 TO RP 174.905
PVMT MK 4IN LINE

8" White Channel Line	360 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 4

**Note: Drawing Not to Scale

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PAVEMENT MARKING LAYOUT

US 81 - ARDOCH

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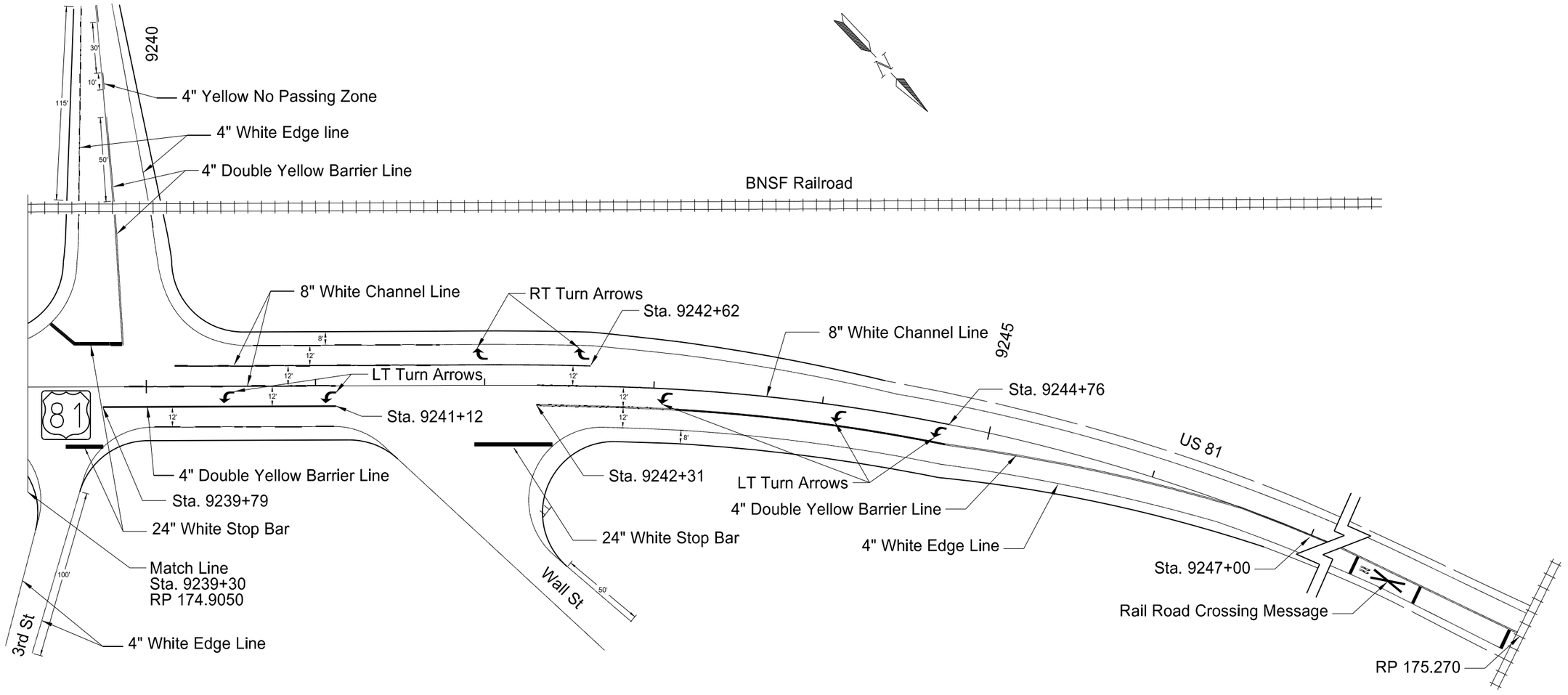
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	120	21



US 81 - RP 174.905 TO RP 175.255
PVMT MK 4IN LINE

4" White Edge Line	4,699 LF
4" Yellow 10' / 30' Skips	20 LF
4" Single Yellow Barrier	66 LF
4" Double Yellow Barrier	3,674 LF
TOTAL	8,459 LF

US 81 - RP 174.905 TO RP 175.255
PVMT MK 8IN LINE

8" White Channel Line	624 LF

US 81 - RP 174.905 TO RP 175.255
PVMT MK 24IN LINE

24" Stop Bar	80 LF

US 81 - RP 174.905 TO RP 175.255
PVMT MK PAINTED MESSAGE

5 - LT Turn Arrows	80 SF
2 - RT Turn Arrow	32 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 4

**Note: Drawing Not to Scale

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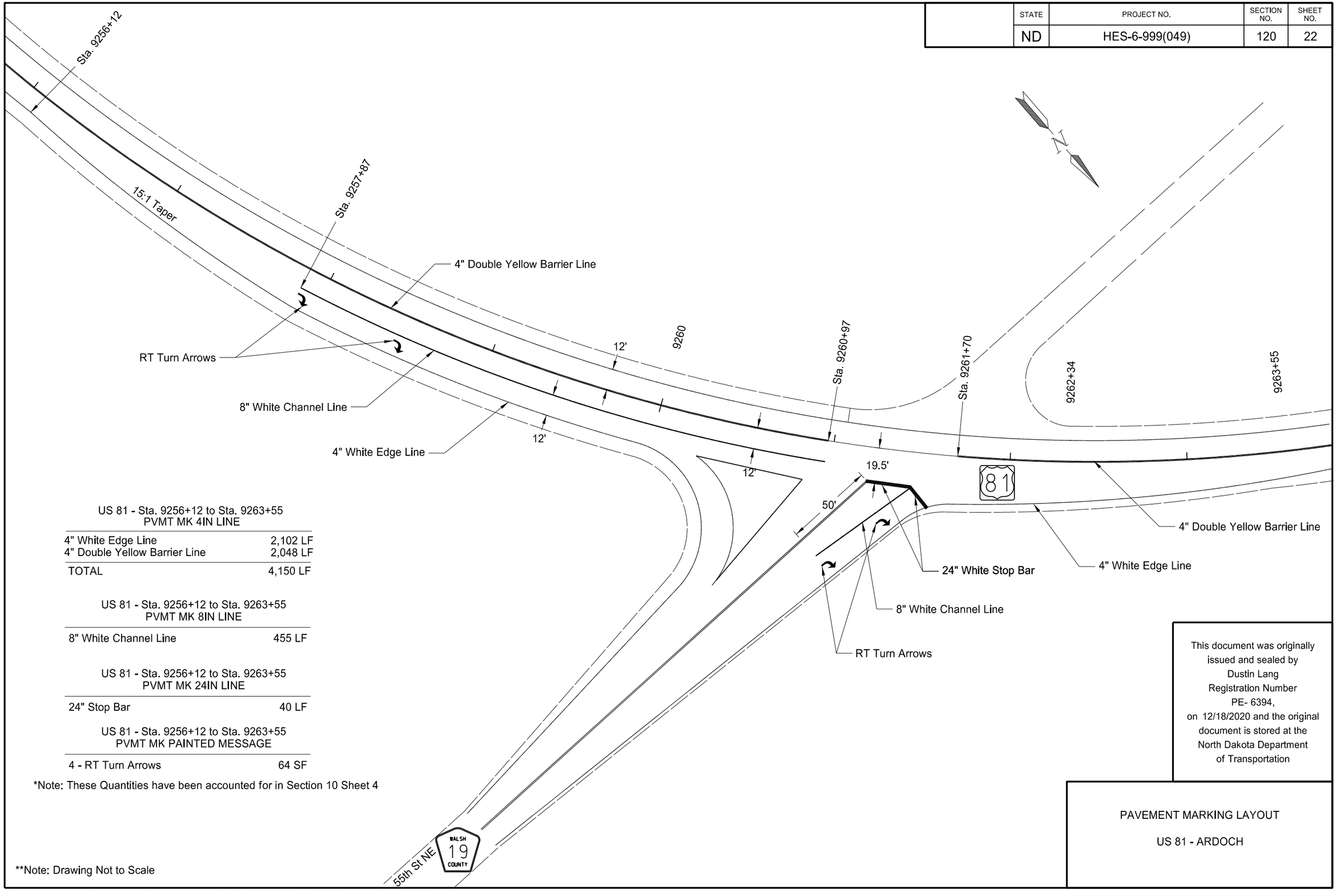
PAVEMENT MARKING LAYOUT

US 81 - ARDOCH

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	22



US 81 - Sta. 9256+12 to Sta. 9263+55
PVMT MK 4IN LINE

4" White Edge Line	2,102 LF
4" Double Yellow Barrier Line	2,048 LF
TOTAL	4,150 LF

US 81 - Sta. 9256+12 to Sta. 9263+55
PVMT MK 8IN LINE

8" White Channel Line	455 LF

US 81 - Sta. 9256+12 to Sta. 9263+55
PVMT MK 24IN LINE

24" Stop Bar	40 LF

US 81 - Sta. 9256+12 to Sta. 9263+55
PVMT MK PAINTED MESSAGE

4 - RT Turn Arrows	64 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 4

**Note: Drawing Not to Scale

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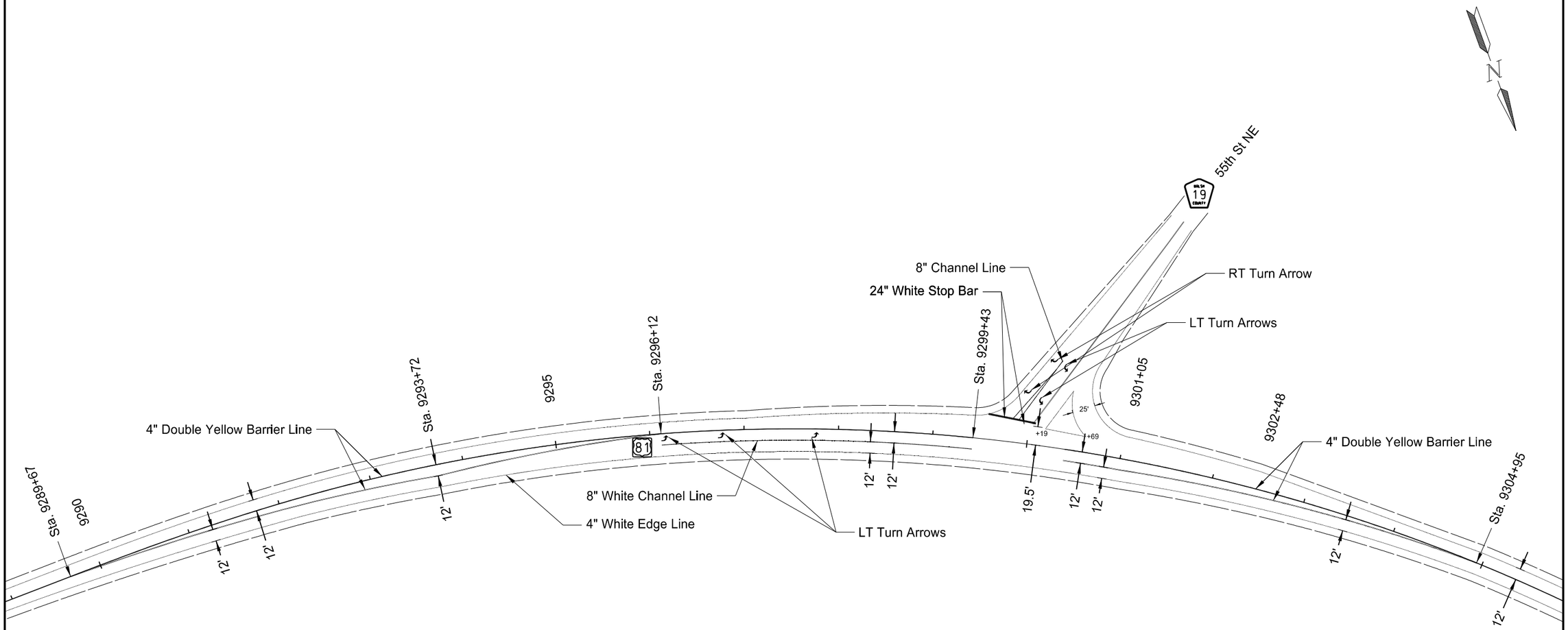
PAVEMENT MARKING LAYOUT

US 81 - ARDOCH

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	23



US 81 - STA. 9289+67 to STA. 9304+95
PVMT MK 4IN LINE

4" White Edge Line	3,631 LF
4" Double Yellow Barrier Line	5,626 LF
TOTAL	9,257 LF

US 81 - STA. 9289+67 to STA. 9304+95
PVMT MK 8IN LINE

8" White Channel Line	481 LF

US 81 - STA. 9289+67 to STA. 9304+95
PVMT MK 24IN LINE

24" Stop Bar	56 LF

US 81 - STA. 9289+67 to STA. 9304+95
PVMT MK PAINTED MESSAGE

5 - LT Turn Arrows	80 SF
2 - RT Turn Arrows	32 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 4

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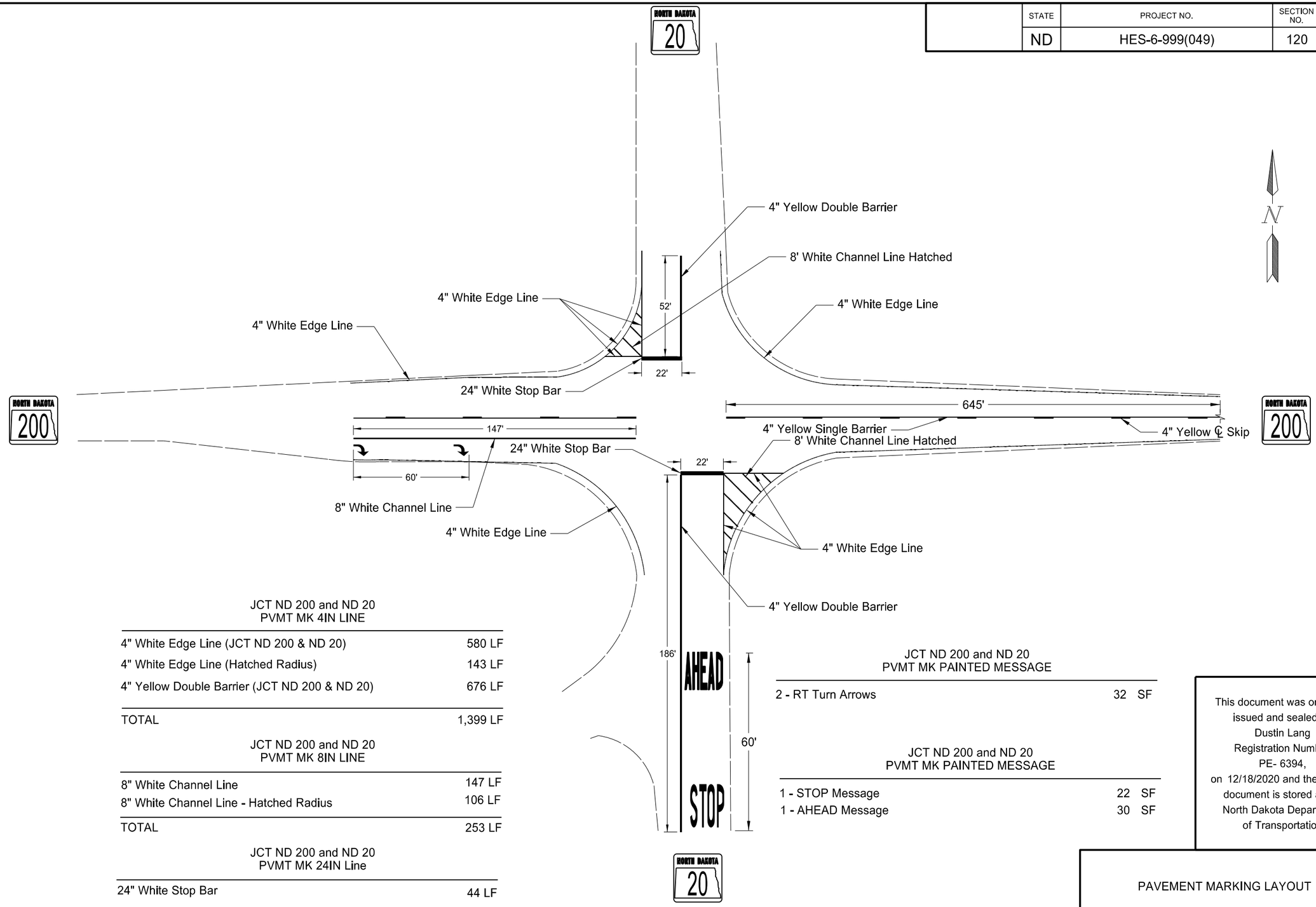
PAVEMENT MARKING LAYOUT

US 81 - ARDOCH

**Note: Drawing Not to Scale

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	24



JCT ND 200 and ND 20
PVMT MK 4IN LINE

4" White Edge Line (JCT ND 200 & ND 20)	580 LF
4" White Edge Line (Hatched Radius)	143 LF
4" Yellow Double Barrier (JCT ND 200 & ND 20)	676 LF
TOTAL	1,399 LF

JCT ND 200 and ND 20
PVMT MK 8IN LINE

8" White Channel Line	147 LF
8" White Channel Line - Hatched Radius	106 LF
TOTAL	253 LF

JCT ND 200 and ND 20
PVMT MK 24IN Line

24" White Stop Bar	44 LF

JCT ND 200 and ND 20
PVMT MK PAINTED MESSAGE

2 - RT Turn Arrows	32	SF

JCT ND 200 and ND 20
PVMT MK PAINTED MESSAGE

1 - STOP Message	22	SF
1 - AHEAD Message	30	SF

*Note: These Quantities have been accounted for in Section 10 Sheet 4

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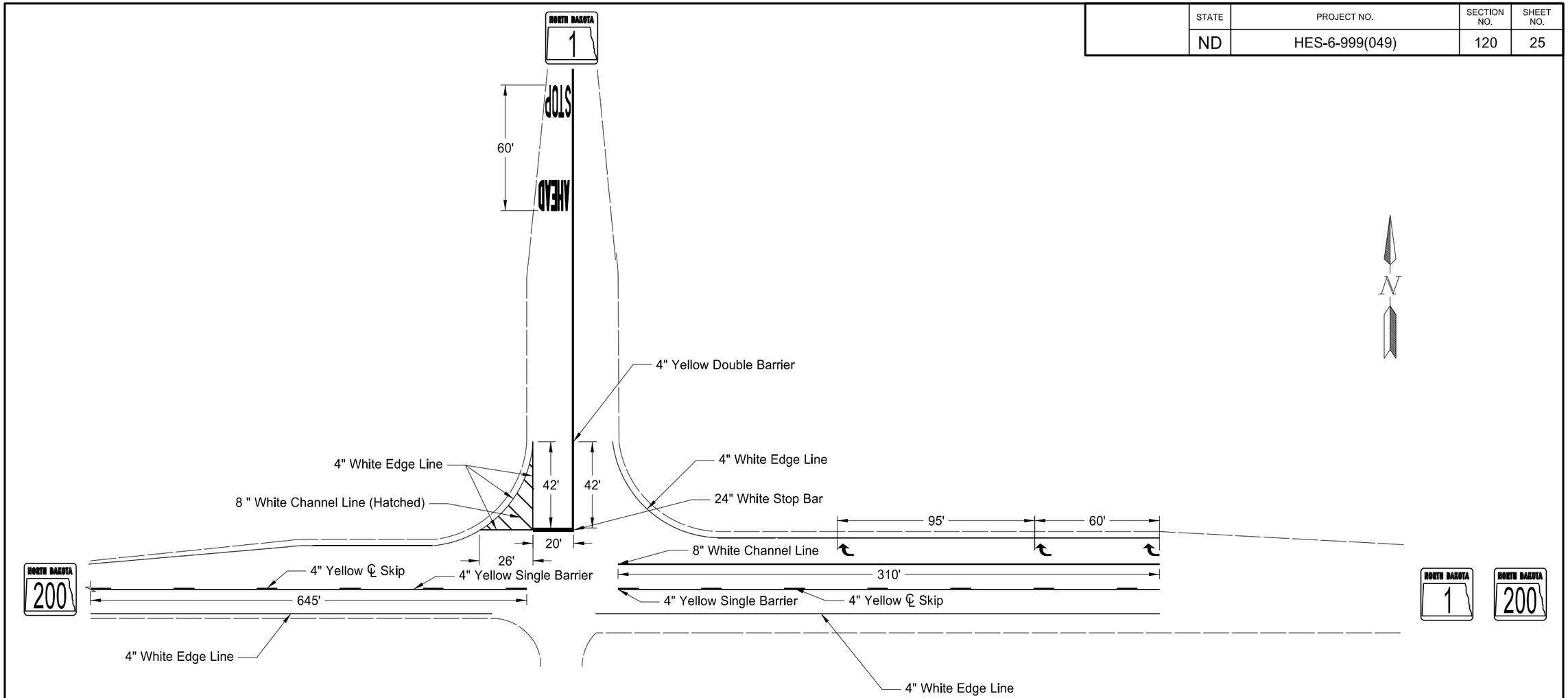
PAVEMENT MARKING LAYOUT

JCT ND HWY 200 & ND HWY 20

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	25



N

JCT ND 200 and ND 1
PVMT MK 4IN Line

4" White Edge Line (JCT ND 200 & ND 1)	213 LF
4" Yellow Double Barrier (JCT ND 200 & ND 1)	84 LF
TOTAL	297 LF

JCT ND 200 and ND 1
PVMT MK 8IN Line

8" White Channel Line	310 LF
8" White Channel Line - Hatched Radius	53 LF
TOTAL	363 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 4

JCT ND 200 and ND 1
PVMT MK 24IN Line

24" White Stop Bar	20 LF

JCT ND 200 and ND 1
PVMT MK PAINTED MESSAGE

3 - RT Turn Arrows	48 SF

JCT ND 200 and ND 1
PVMT MK PAINTED MESSAGE

1 - STOP Message	22 SF
1 - AHEAD Message	30 SF

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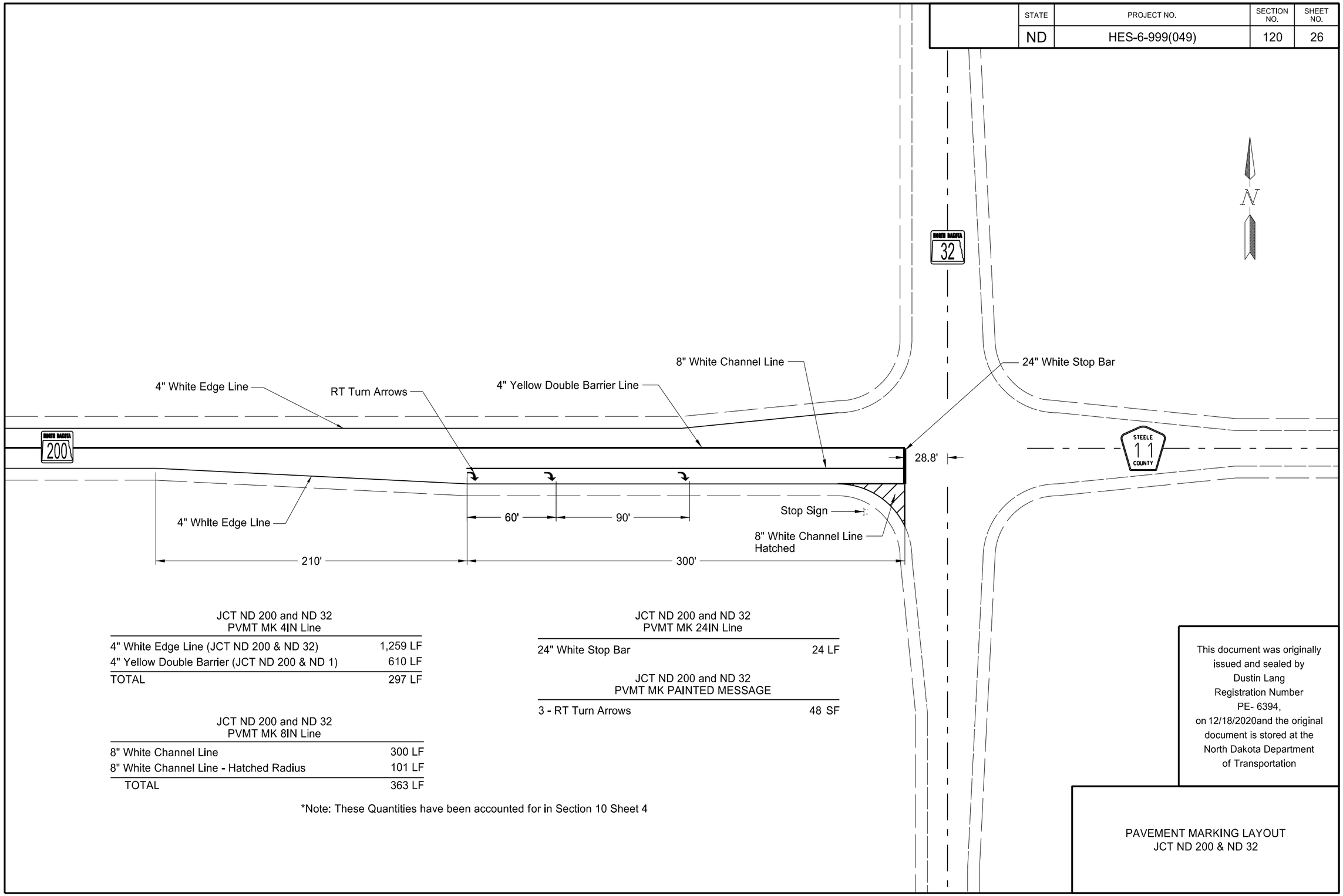
PAVEMENT MARKING LAYOUT

JCT ND HWY 200 and W. JCT ND HWY 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HES-6-999(049)	120	26



JCT ND 200 and ND 32
PVMT MK 4IN Line

4" White Edge Line (JCT ND 200 & ND 32)	1,259 LF
4" Yellow Double Barrier (JCT ND 200 & ND 1)	610 LF
TOTAL	297 LF

JCT ND 200 and ND 32
PVMT MK 8IN Line

8" White Channel Line	300 LF
8" White Channel Line - Hatched Radius	101 LF
TOTAL	363 LF

JCT ND 200 and ND 32
PVMT MK 24IN Line

24" White Stop Bar	24 LF

JCT ND 200 and ND 32
PVMT MK PAINTED MESSAGE

3 - RT Turn Arrows	48 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 4

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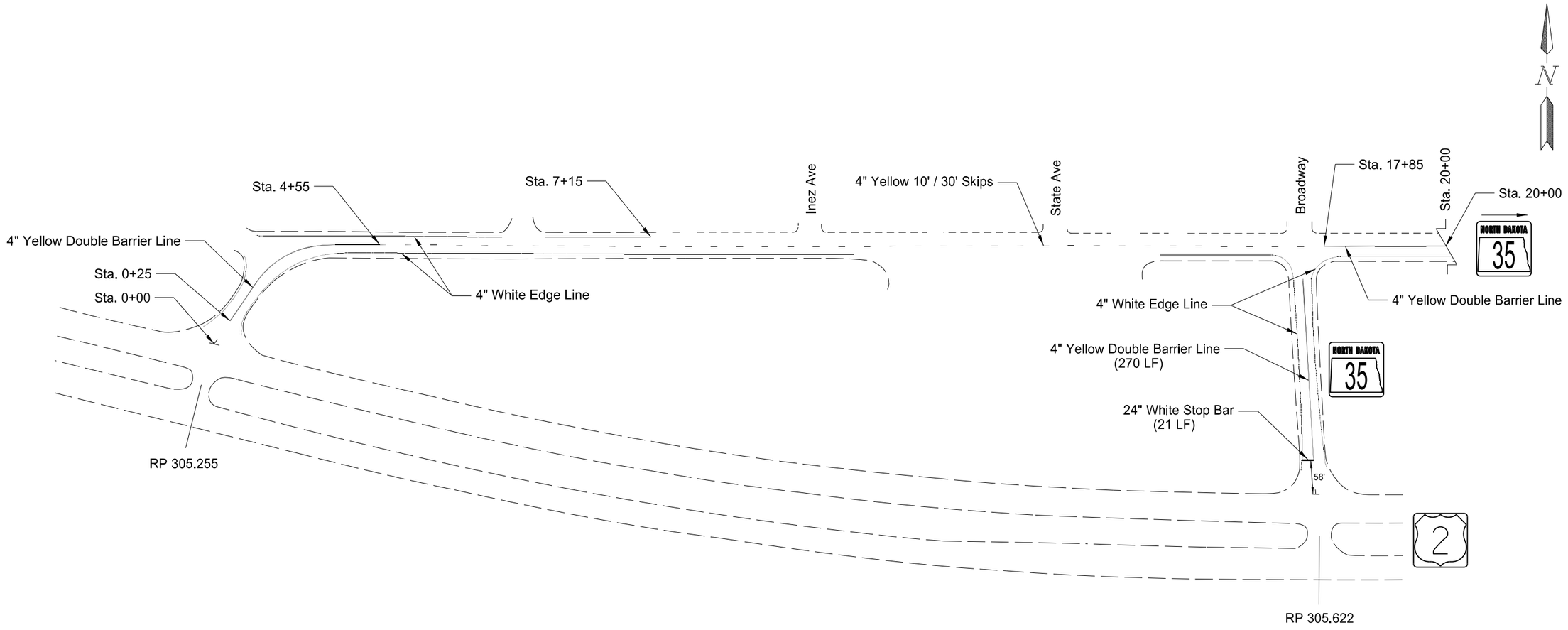
PAVEMENT MARKING LAYOUT
JCT ND 200 & ND 32

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	27



US 2 FRONTAGE ROAD AT MICHIGAN
STA 0+00 TO STA 20+00
PVMT MK 4IN LINE

4" White Edge Line	3,467 LF
4" Yellow 10' Line / 30' Skip	330 LF
4" Yellow Double Barrier Line	1,830 LF
TOTAL	5,583 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 5

US 2 FRONTAGE ROAD AT MICHIGAN
STA 0+00 TO STA 20+00
PVMT MK 24IN LINE

24" White Stop Bar	21 LF

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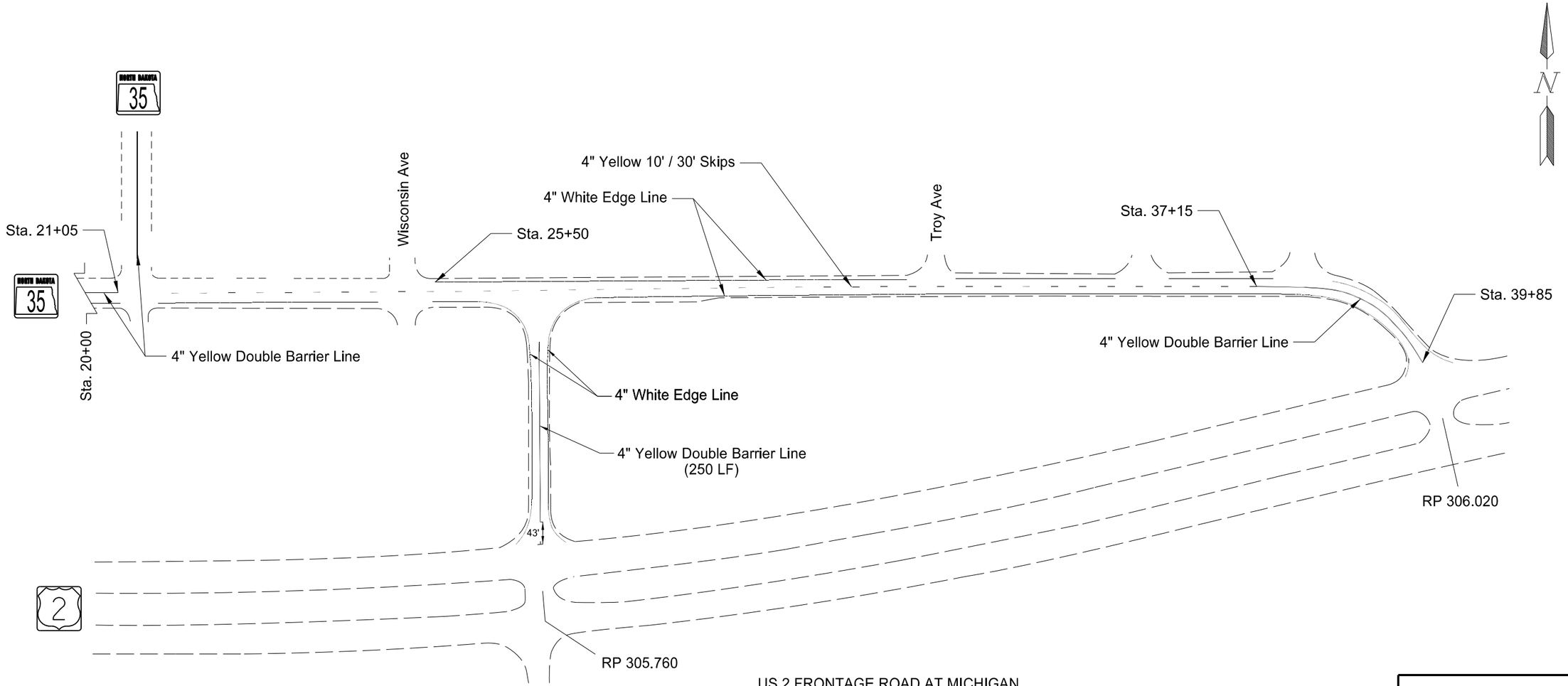
PAVEMENT MARKING LAYOUT

MICHIGAN ACCESS & FRONTAGE ROAD
JCT US 2 & ND HWY 35

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	28



US 2 FRONTAGE ROAD AT MICHIGAN
STA 20+00 TO STA 39+85
PVMT MK 4IN LINE

4" White Edge Line	4,128 LF
4" Yellow 10' Line / 30' Skip	400 LF
4" Yellow Double Barrier Line	1,250 LF
TOTAL	5,778 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 5

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PAVEMENT MARKING LAYOUT

MICHIGAN ACCESS & FRONTAGE ROAD
JCT US HWY 2 & ND HWY 35

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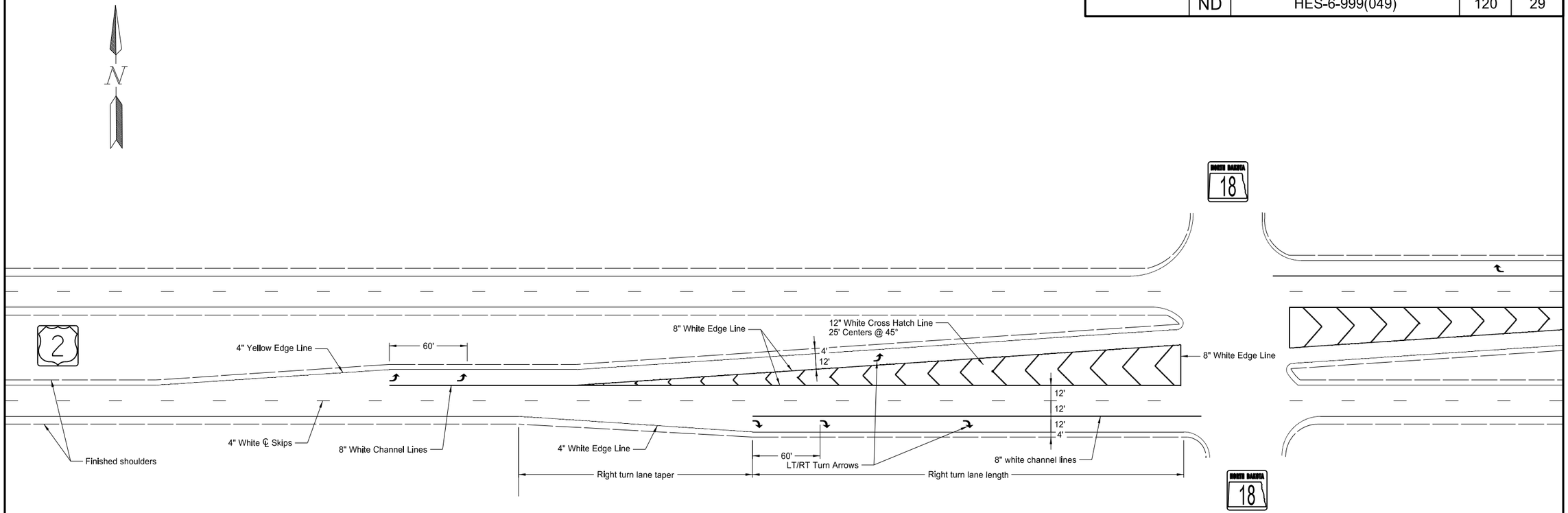
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	29



US 2 N. JCT ND 18
TURN LANES
RP 335.520 (Sta 17451+45.60)
PVMT MK 4IN LINE

4" White Edge Line (Right)	907 LF
4" White Edge Line (Left)	1,033 LF
4" Yellow Edge Line	980 LF
TOTAL	2,920 LF

US 2 N. JCT ND 18
TURN LANES
RP 335.520 (Sta 17451+45.60)
PVMT MK 12IN LINE

12" White Cross Hatched Line	693 LF

US 2 N. JCT ND 18
TURN LANES
RP 335.520 (Sta 17451+45.60)
PVMT MK PAINTED MESSAGE

3 - RT Turn Arrows	48 SF
3 - LT Turn Arrows	48 SF

US 2 N. JCT ND 18
TURN LANES
RP 335.520 (Sta 17451+45.60)
PVMT MK 4IN LINE

8" White Channel Line - Right Turn Lane	345 LF
8" White Channel Line - Left Turn Lane	1,107 LF
TOTAL	1,452 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 6

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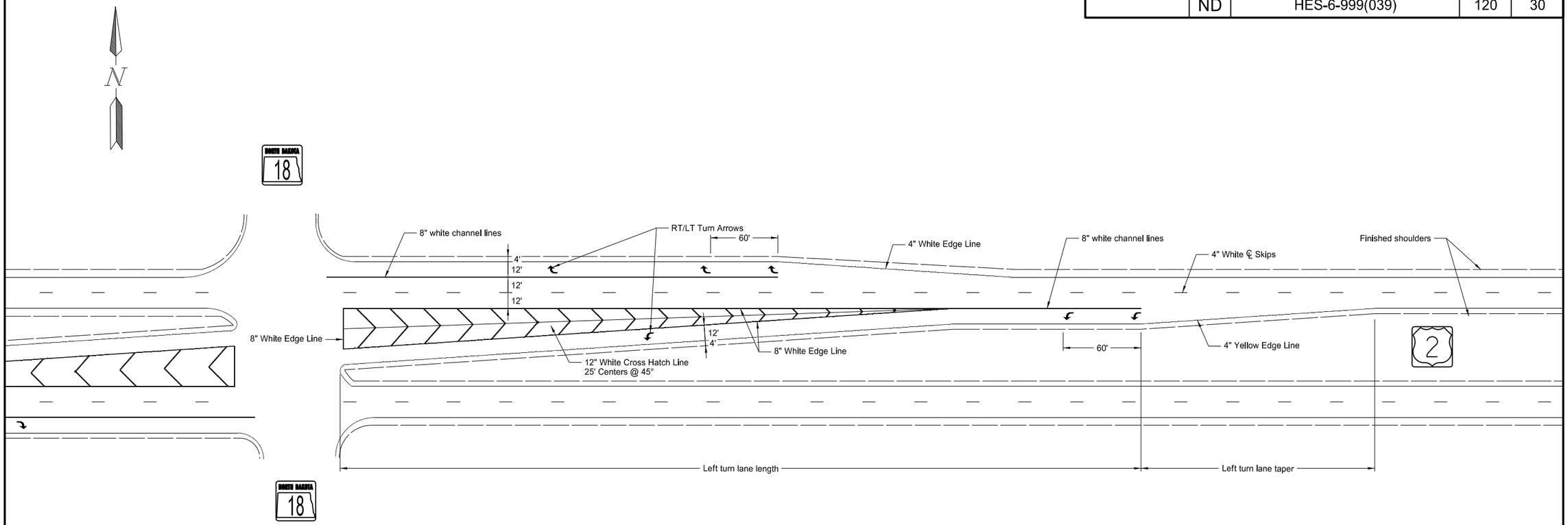
PAVEMENT MARKING LAYOUT

TURN LANES & HATCHING
EB US HWY 2
US HWY 2 & ND HWY 18 (37th St NE)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(039)	120	30



US 2 N. JCT ND 18
TURN LANES
RP 330.520 (Sta 17451+45.60)
PVMT MK 4IN LINE

4" White Edge Line (Right)	1,132 LF
4" White Edge Line (Left)	980 LF
4" Yellow Edge Line	996 LF
TOTAL	3,108 LF

US 2 N. JCT ND 18
TURN LANES
RP 330.520 (Sta 17451+45.60)
PVMT MK 8IN LINE

8" White Channel Line - Right Trun Lane	348 LF
8" White Channel Line - Left Turn Lane	1,117 LF
TOTAL	1,465 LF

US 2 N. JCT ND 18
TURN LANES
RP 330.520 (Sta 17451+45.60)
PVMT MK 12IN LINE

12" White Cross Hatched Line	666 LF

US 2 N. JCT ND 18
TURN LANES
RP 330.520 (Sta 17451+45.60)
PVMT MK PAINTED MESSAGE

3 - RT Turn Arrows	48 SF
3 - LT Turn Arrows	48 SF

*Note: These Quantities have been accounted for in Section 10 Sheet 5

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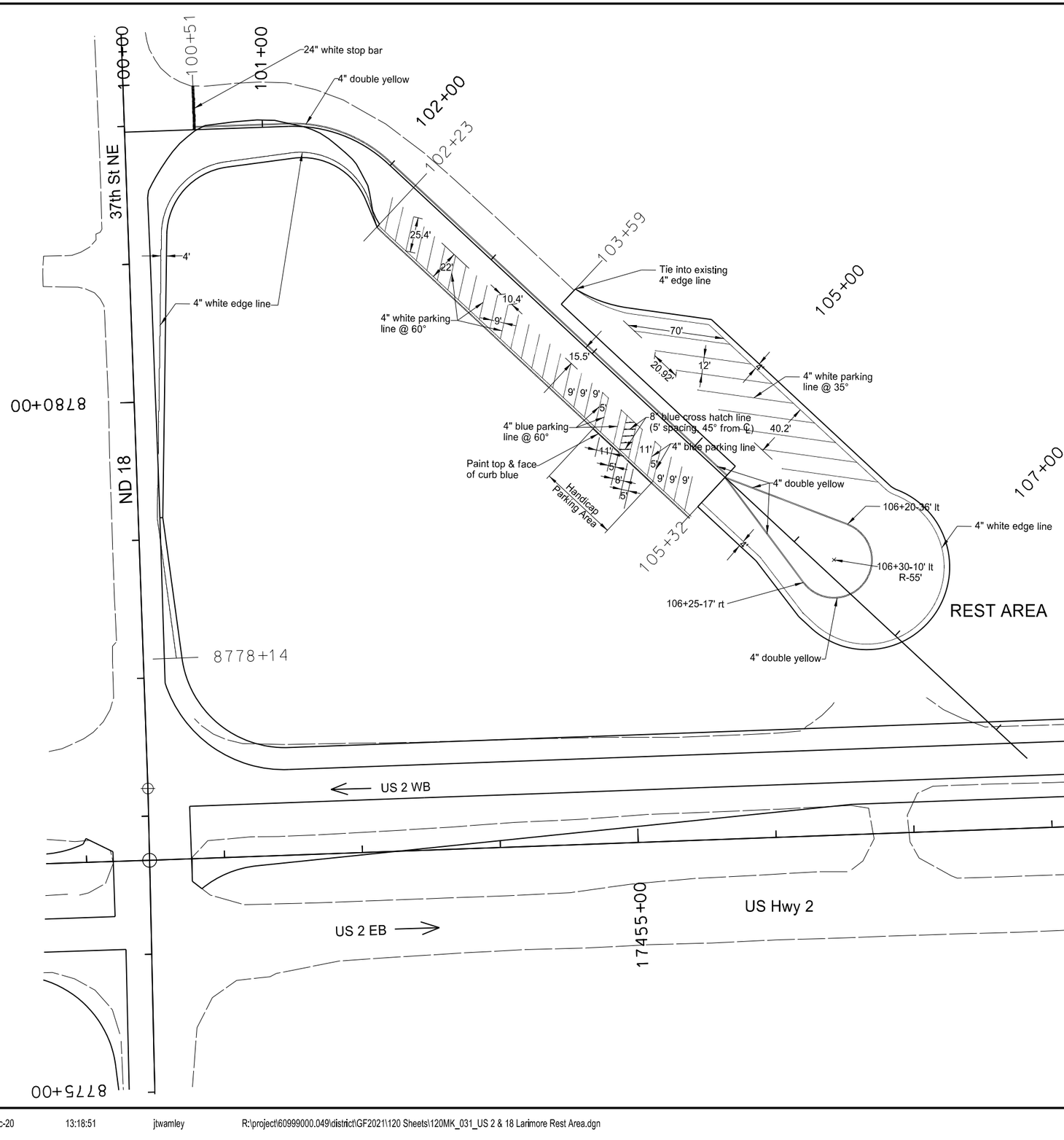
PAVEMENT MARKING LAYOUT

TURN LANES & HATCHING
WB US HWY 2
US HWY 2 & ND HWY 18 (37th St NE)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	31



Paint pvmt mk 4in line

4" white edge line	1126 LF
4" white parking line	1144 LF
4" blue handicap parking line	236 LF
4" double yellow barrier line (4" between)	1548 LF
Total	4054 LF

Paint pvmt mk 8in line

8" blue cross hatch (5' centers @ 45°)	40 LF

Paint pvmt mk 24in line

24" white stop bar	32 LF

Paint pvmt mk curb top & face

Blue	49 LF

*Note: These Quantities have been accounted for in Section 10 Sheet 5

N

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Pavement Marking Layout

Rest Area

US Hwy 2 & ND Hwy 18 (37th St NE)

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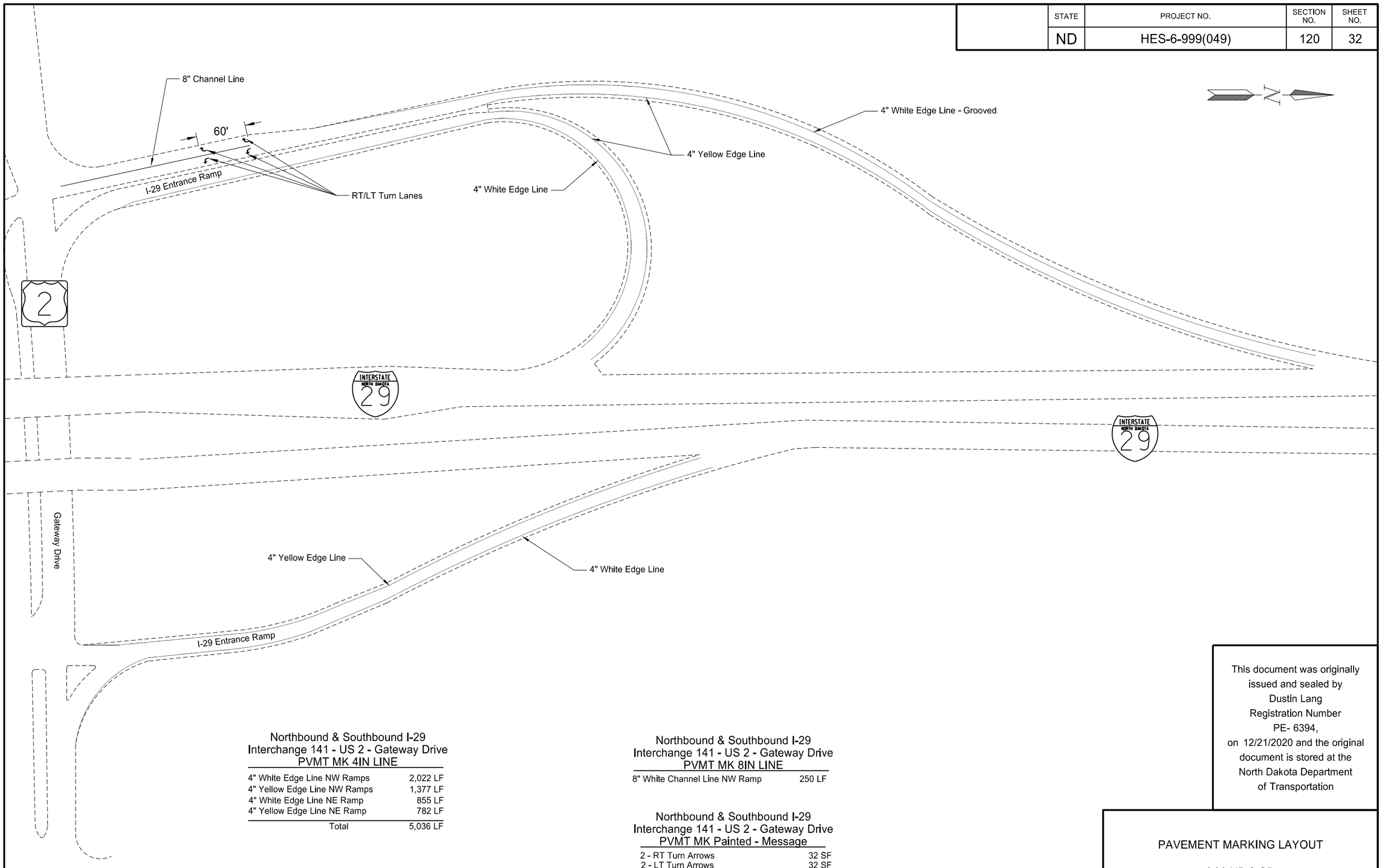
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	32



Northbound & Southbound I-29
Interchange 141 - US 2 - Gateway Drive
PVMT MK 4IN LINE

4" White Edge Line NW Ramps	2,022 LF
4" Yellow Edge Line NW Ramps	1,377 LF
4" White Edge Line NE Ramp	855 LF
4" Yellow Edge Line NE Ramp	782 LF
Total	5,036 LF

Northbound & Southbound I-29
Interchange 141 - US 2 - Gateway Drive
PVMT MK 8IN LINE

8" White Channel Line NW Ramp	250 LF

Northbound & Southbound I-29
Interchange 141 - US 2 - Gateway Drive
PVMT MK Painted - Message

2 - RT Turn Arrows	32 SF
2 - LT Turn Arrows	32 SF

*Note: These Quantities have been accounted for in Section 10 Sheet(s) 7 & 8

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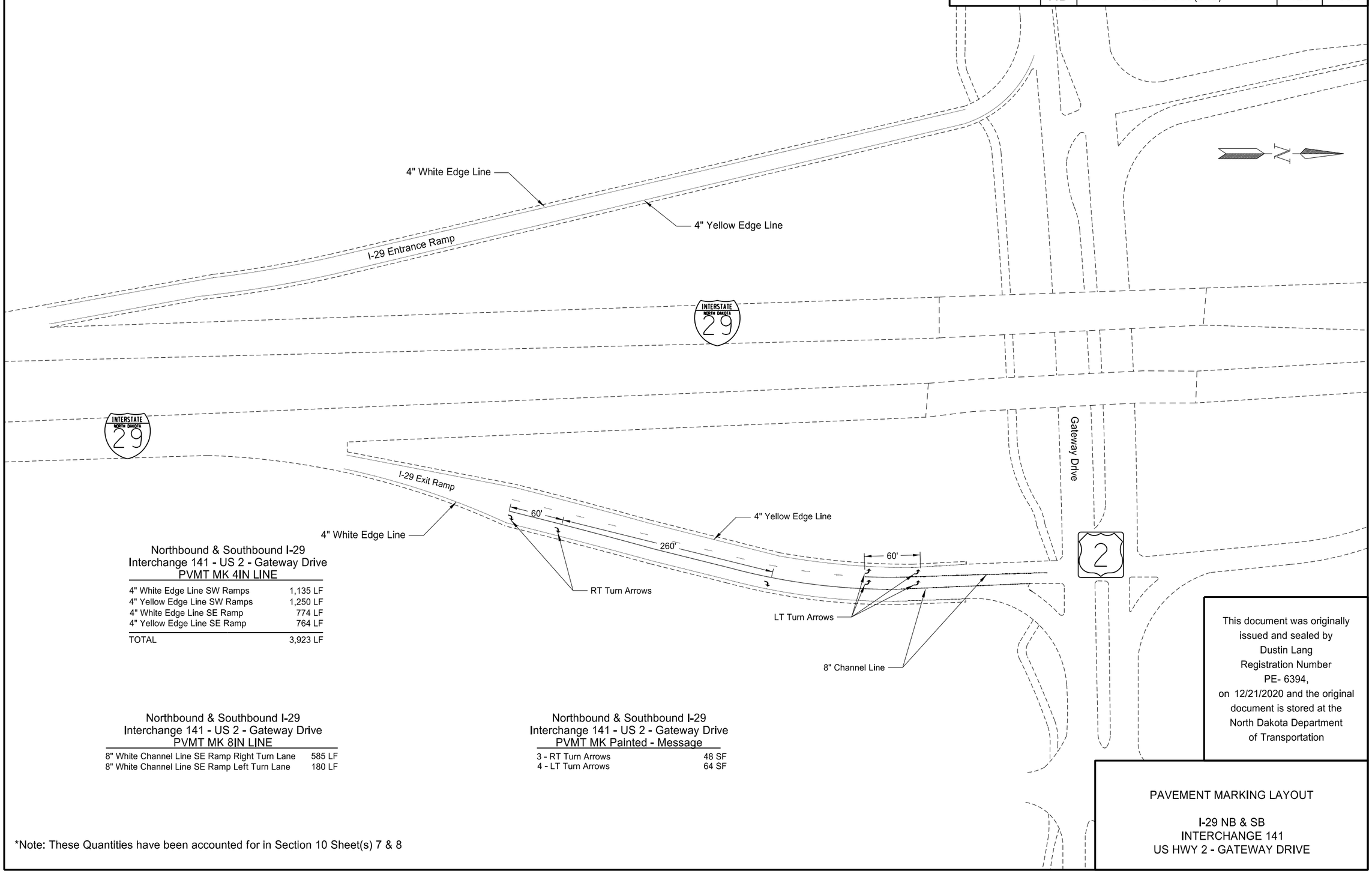
PAVEMENT MARKING LAYOUT

I-29 NB & SB
INTERCHANGE 141
US HWY 2 - GATEWAY DRIVE

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	33



Northbound & Southbound I-29
Interchange 141 - US 2 - Gateway Drive
PVMT MK 4IN LINE

4" White Edge Line SW Ramps	1,135 LF
4" Yellow Edge Line SW Ramps	1,250 LF
4" White Edge Line SE Ramp	774 LF
4" Yellow Edge Line SE Ramp	764 LF
TOTAL	3,923 LF

Northbound & Southbound I-29
Interchange 141 - US 2 - Gateway Drive
PVMT MK 8IN LINE

8" White Channel Line SE Ramp Right Turn Lane	585 LF
8" White Channel Line SE Ramp Left Turn Lane	180 LF

Northbound & Southbound I-29
Interchange 141 - US 2 - Gateway Drive
PVMT MK Painted - Message

3 - RT Turn Arrows	48 SF
4 - LT Turn Arrows	64 SF

*Note: These Quantities have been accounted for in Section 10 Sheet(s) 7 & 8

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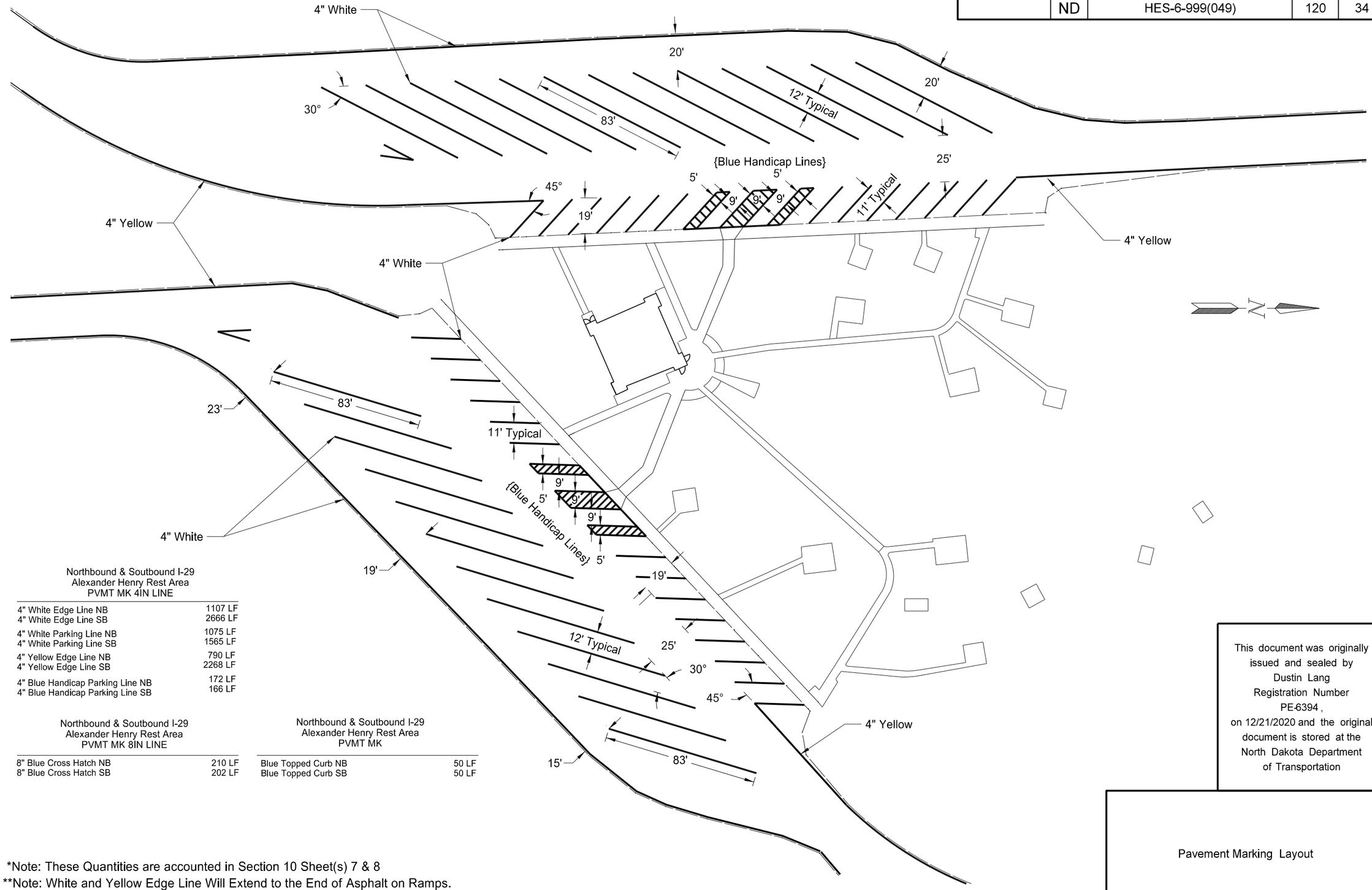
PAVEMENT MARKING LAYOUT

I-29 NB & SB
INTERCHANGE 141
US HWY 2 - GATEWAY DRIVE

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	HES-6-999(049)	120	34



Northbound & Soutbound I-29
Alexander Henry Rest Area
PVMT MK 4IN LINE

4" White Edge Line NB	1107 LF
4" White Edge Line SB	2666 LF
4" White Parking Line NB	1075 LF
4" White Parking Line SB	1565 LF
4" Yellow Edge Line NB	790 LF
4" Yellow Edge Line SB	2268 LF
4" Blue Handicap Parking Line NB	172 LF
4" Blue Handicap Parking Line SB	166 LF

Northbound & Soutbound I-29
Alexander Henry Rest Area
PVMT MK 8IN LINE

8" Blue Cross Hatch NB	210 LF
8" Blue Cross Hatch SB	202 LF

Northbound & Soutbound I-29
Alexander Henry Rest Area
PVMT MK

Blue Topped Curb NB	50 LF
Blue Topped Curb SB	50 LF

*Note: These Quantities are accounted in Section 10 Sheet(s) 7 & 8
**Note: White and Yellow Edge Line Will Extend to the End of Asphalt on Ramps.

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Pavement Marking Layout

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
Ac	acres
Adj	adjusted
Aggr	aggregate
Ahd	ahead
ARV	air release valve
Align	alignment
Al	alley
Alt	alternate
Alum	aluminum
ADA	Americans with Disabilities Act
A	ampere
&	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
Az	azimuth
Bk	back
BF	back face
Bs	backsight
Balc	balcony
B Wire	barbed wire
Barr	barricade
Btry	battery
Brg	bearing
BI	beehive inlet
Beg	begin
BG	below grade
BM	bench mark
Bkwy	bikeway
Bit	bituminous
Blk	block
Bd Ft	board feet
BH	bore hole
BS	both sides
Bot	bottom
Blvd	Boulevard
Bndry	boundary
BC	brass cap
Brkwy	breakaway
Br	bridge
Bldg	building
BV	butterfly valve
Byp	bypass
C Gdrl	cable guardrail
Calc	calculate
Cd	candela
CIP	cast iron pipe
CB	catch basin
CRS	cationic rapid setting
C Gd	cattle guard
C To C	center to center
CI or ℄	centerline
Cm	centimeter
Ch	chain
Chnlk	chain-link
Ch Blk	channel block
Ch Ch	channel change
Chk	check
Chsld	chiseled
Cir	circle
Cl	class
Cl	clay
Cl F	clay fill
Cl Hvy	clay heavy
Cl Lm	clay loam
Clnt	clean-out
Clr	clear
Cl&gr	clearing & grubbing
Co S	coal slack
C Gr	coarse gravel
CS	coarse sand
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
C	coulomb
Co	County
Crse	course
Ct	Court
Xarm	cross arm
Xbuck	cross buck
Xsec	cross sections
Xing	crossing
Xrd	Crossroad
Crn	crown
CF	cubic feet
M3	cubic meter
M3/s	cubic meters per second
CY	cubic yard
Cy/mi	cubic yards per mile
Culv	culvert
C&G	curb & gutter
CI	curb inlet
CR	curb ramp
CS	curve to spiral
C	cut
Dd Ld	dead load
Defl	deflection
Defm	deformed
Deg or D	degree
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
DSDS	dynamic speed display sign
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
Eq	equation
Evgr	evergreen
Exc	excavation
Exst	existing
Exp	expansion
Expy	Expressway
E	external of curve
Extru	extruded
FOS	factor of safety
F	Fahrenheit
FS	far side
F	farad
Fed	Federal
FP	feed point
Ft	feet/foot
Fn	fence
Fn P	fence post
FO	fiber optic
FB	field book
FD	field drive
F	fill
FAA	fine aggregate angularity
FS	fine sand
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
Fs	foresight

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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REVISIONS	
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NDDOT ABBREVIATIONS

D-101-2

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
Gal	gallon
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
Geod	geodetic
GIS	Geographical Information System
G	giga
GPS	Global Positioning System
Gov	government
Grd	graded/grade
Gr	gravel
Grnd	ground
GWM	ground water monitor
Gdrl	guardrail
Gtr	gutter
H Plg	H piling
Hdwl	headwall
Ha	hectare
Ht	height
HI	height of instrument
Hel	helical
H	henry
Hz	hertz
HDPE	high density polyethylene
HM	high mast
HP	high pressure
HPS	high pressure sodium
Hwy	highway
Hor	horizontal
HBP	hot bituminous pavement
HMA	hot mix asphalt
Hr	hour(s)
Hyd	hydrant
Ph	hydrogen ion content
Id	identification
In or "	inch
Incl	inclinometer tube
IMH	inlet manhole
ID	inside diameter
Inst	instrument
Intchg	interchange
Intmdt	intermediate
Intscn	intersection
Inv	invert
IM	iron monument
I Pn	Iron Pin
IP	iron Pipe
Jt	joint
J	joule
Jct	junction
K	kelvin
Kn	kilo newton
Kpa	kilo pascal
Kg	kilogram
Kg/m3	kilogram per cubic meter
Km	kilometer
K	Kip(s)
LS	Land Surveyor (licensed)
LSIT	Land Surveyor In Training
Ln	lane
Lg	large
Lat	latitude
Lt	left
L	length of curve
Lens	lenses
Lvl	level
LB	level book
Lvlng	leveling
Lht	light
LP	light pole
Ltg	lighting
Lig Co	lignite coal
Lig Sl	lignite slack
LF	linear foot
Liq	liquid
LL	liquid limit
L	litre
Lm	loam
Loc	location
LC	long chord
Long.	longitude
Lp	loop
LD	loop detector
Lm	lumen
Lum	luminaire
L Sum	lump sum
Lx	lux
Mb	mailbox
ML	main line
M Hr	man hour
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
M	mega
Mer	meridian
M	meter
M/s	meters per second
M	mid ordinate of curve
MGS	Midwest Guardrail System
Mi	mile
MM	mile marker
MP	mile post
Ml	milliliter
Mm	millimeter
Mm/hr	millimeters per hour
Min	minimum
Misc	miscellaneous
Mon	monument
Mnd	mound
Mtbl	mountable
Mtd	mounted
Mtg	mounting
Mk	muck
Mun	municipal
N	nano
NGS	National Geodetic Survey
NS	near side
Neop	neoprene
Ntwk	network
N	newton
N	North
NE	North East
NW	North West
NB	Northbound
No. or #	number
Obsc	obscure(d)
Obsn	observation
Ocpd	occupied
Ocpy	occupy
Off Loc	office location
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
PK	Parker-Kalon nail
Pa	pascal
PSD	passing sight distance
Pvmt	pavement
Ped	pedestal
Ped	pedestrian
PPP	pedestrian pushbutton post
Pen.	penetration
Perf	perforated
Per.	perimeter
PL	pipeline
Pl	place
P&P	plan & profile
PL	plastic limit
P Cap	plastic cap
Pl or ℙ	plate
Pt	point
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
PE	polyethylene
PVC	polyvinyl chloride
PCC	Portland Cement concrete
Lb or #	pounds
PP	power pole
Preempt	preemption
Prefab	prefabricated
Prfmd or Pref	preformed
Prep	preperation
Press.	pressure

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NDDOT ABBREVIATIONS

D-101-3

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
RTP	random traverse point
Rge or R	range
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
RCTES	reinforced concrete traversable end section
RCP	reinforced concrete pipe
RCPS	reinforced concrete pipe sewer
Reinf	reinforcement
Res	reservation
Rs	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
Salv	salvage(d)
Sd	sand
Sdy Cl	sandy clay
Sdy Cl Lm	sandy clay loam
Sdy Fl	sandy fill
Sdy Lm	sandy loam
San	sanitary sewer line
Sc	scoria
Sec	seconds
Sec	section
SL	section line
Sep	separation
Seq	sequence
Serv	service
Sh	shale
Sht	sheet
Shtng	sheeting
Shldr	shoulder
Sw or Sdwk	sidewalk
S	siemens
SD	sight distance
SN	sign number
Sig	signal
Si Cl	silt clay
Si Cl Lm	silty clay loam
Si Lm	silty loam
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
SC	spiral to curve
ST	spiral to tangent
SB	split barrel sample
SH	sprinkler head
SV	sprinkler valve
Sq	square
SF	square feet
Km2	square kilometer
M2	square meter
SY	square yard
Stk	stake
Std	standard
N	standard penetration test
Std Specs	standard specifications
Sta	station
Sta Yd	station yards
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
SE	superelevation
SS	supplement specification
Supp	supplemental
Surf	surfacing
Surv	survey
Sym	symmetrical
SI	systems international
Tan	tangent
T	tangent (semi)
TS	tangent to spiral
Tel	telephone
Tel B	Telephone Booth
Tel P	telephone pole
Tv	television
Temp	temperature
Temp	temporary
TBM	temporary bench mark
T	tesla
T	thinwall tube sample
T/mi	tons per mile
Ts	topsoil
Twp or T	township
Traf	traffic
TSCB	traffic signal control box
Tr	trail
Transf	transformer
TB	transit book
Trans	transition
TT	transmission tower
TES	traversable end section
Trans	transverse
Trav	traverse
TP	traverse point
Trtd	treated
Trmt	treatment
Qc	triaxial compression
TERO	tribal employment rights ordinance
Tpl	triple
TP	turning point
Typ	typical
Qu	unconfined compressive strength
Ugrnd	underground
USC&G	US Coast & Geodetic Survey
USGS	US Geologic Survey
Util	utility
VG	valley gutter
Vap	vapor
Vert	vertical
VC	vertical curve
VCP	vitrified clay pipe
V	volt
Vol	volume
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
W	watt
Wrng	wearing
Wb	weber
WIM	weigh in motion
W	west
WB	westbound
Wrng	wiring
W/	with
W/o	without
WC	witness corner
WGS	world geodetic system
Z	zenith

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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 PI	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
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
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
MID-CONT CABLE	Mid-Continent Cable
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
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 TEL	Red River Rural Telephone
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
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

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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

Proposed Topography

- 3-Cable w Posts
- Flow
- Fence
- Remove Line
- Wall
- Retaining Wall (Plan View)
- W-Beam w 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	Added and Revised Items, Organized by Functional Groups

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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
- Failure Line

Countours

- 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

- Hidden Object
- Small Hidden Object
- Large Hidden Object
- Phantom Object
- Centerline Main
- Centerline
- Existing Ground (Details)
- Existing Conditions
- 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)

Truck Mounted Attenuator

Type I Barricade

Type II Barricade

Type III Barricade

Catch Basin

Cairn or Stone Circle

Video Detection Camera

Storm Drain Cap or Stub

Corrugated Metal End Section 18 Inch

Corrugated Metal End Section 24 Inch

Corrugated Metal End Section 30 Inch

Corrugated Metal End Section 36 Inch

Corrugated Metal End Section 42 Inch

Corrugated Metal End Section 48 Inch

Concrete Foundation

Ground Connection Conductor

Neutral Connection Conductor

Phase 1 Connection Conductor

Phase 2 Connection Conductor

Traffic Cone

Signal Controller

Pad Mounted Signal Controller

Alignment Data Point

Emergency Vehicle Detector

Attenuation Device

Diamond Grade Delineator Type A

Diamond Grade Delineator Type B

Diamond Grade Delineator Type C

Diamond Grade Delineator Type D

Diamond Grade Delineator Type E

Flexible Delineator

Flexible Delineator Type A

Flexible Delineator Type B

Flexible Delineator Type C

Flexible Delineator Type D

Flexible Delineator Type E

Delineator Type A

Delineator Type A Reset

Delineator Type B

Delineator Type B Reset

Delineator Type C

Delineator Type D

Delineator Type E

Delineator Drums

Spot Elevation

Existing Access Control Arrow

Existing Artifact

Existing Flashing Beacon

Existing Benchmark

Existing Railroad Battery Box

Existing Bush or Shrub

Existing Gas Cap or Stub

Existing Sanitary Cap or Stub

Existing Storm Drain Cap or Stub

Existing Water Cap or Stub

Existing Sanitary Cleanout

Existing Concrete Foundation

Existing Traffic Signal Controller

Existing Pad Mounted Signal Controller

Existing Sixteenth Section Corner

Existing Quarter Section Corner

Existing Section Corner

Existing Railroad Crossbuck

Existing Satellite Dish

Existing Fuel Dispensers

Existing Flexible Delineator Type A

Existing Flexible Delineator Type B

Existing Flexible Delineator Type C

Existing Flexible Delineator Type D

Existing Flexible Delineator Type E

Existing Delineator Type A

Existing Delineator Type B

Existing Delineator Type C

Existing Delineator Type D

Existing Delineator Type E

Existing EFB Misc

Existing Flashing Beacon

Existing Pipe Mounted Flasher

Existing Pad Mounted Feed Point

Existing Pipe Mounted Feed Point with Pad

Existing Pole Mounted Feed Point

Existing Railroad Frog

Existing Snow Gate 18

Existing Snow Gate 28

Existing Snow Gate 40

Existing Headwall

Existing Pedestrian Head with Number

Existing Signal Head

Existing Sprinkler Head

Existing Fire Hydrant

Existing Catch Basin Drop Inlet

Existing Curb Inlet

Existing Manhole Inlet

Existing Junction Box

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE

This document was originally issued and sealed by Roger Weigel, Registration Number PE- 2930 , on 07/01/14 and the original document is stored at the North Dakota Department of Transportation

Symbols

D-101-31

- Existing Light Standard
- Existing High Mast Light Standard 10 Luminaire
- Existing High Mast Light Standard 3 Luminaire
- Existing High Mast Light Standard 4 Luminaire
- Existing High Mast Light Standard 5 Luminaire
- Existing High Mast Light Standard 6 Luminaire
- Existing High Mast Light Standard 7 Luminaire
- Existing High Mast Light Standard 8 Luminaire
- Existing High Mast Light Standard 9 Luminaire
- Existing Overhead Sign Structure Load Center
- Existing Luminaire
- Existing Light Standard Luminaire
- Existing Federal Mailbox
- Existing Private Mailbox
- Existing Meander Section Corner
- Existing Meter
- Existing Electrical Manhole
- Existing Gas Manhole
- Existing Sanitary Manhole
- Existing Sanitary Force Main Manhole
- Existing Sanitary Manhole with Valve
- Existing Storm Drain Manhole
- Existing Force Main Storm Drain Manhole
- Existing Force Main Storm Drain Manhole with Valve
- Existing Telephone Manhole
- Existing Manhole with Valve Water
- Existing Water Manhole
- Existing Mile Post Type A
- Existing Mile Post Type B
- Existing Mile Post Type C
- Existing Reference Marker
- Existing RW Marker
- Existing Utility Marker
- Iron Monument Found
- Iron Pin R/W Monument
- Existing Object Marker Type I
- Existing Object Marker Type II
- Existing Object Marker Type III
- Existing Electrical Pedestal
- Existing Telephone Pedestal
- Existing Fiber Optic Telephone Pedestal
- Existing TV Pedestal
- Existing Fiber Optic TV Pedestal
- Existing Fuel Filler Pipes
- Existing Traverse PI Aerial Panel
- Existing Pole
- Existing Power Pole
- Existing Power Pole with Transformer
- Existing Telephone Pole
- Existing Wood Pole
- Existing Post
- Existing Pedestrian Push Button Post
- Existing Control Point CP
- Existing Control Point GPS-RTK
- Existing Control Point TRI
- Existing Reference Marker Point NGS
- Existing Pull Box
- Existing Intelligent Transportation Pull Box
- Existing Water Pump
- Existing Slotted Reinforced Concrete Pipe
- Existing RR Profile Spot
- Existing Fuel Leak Sensors
- Existing Highway Sign
- Existing Miscellaneous Spot
- Existing Lighting Standard Pole
- Existing Traffic Signal Standard
- Existing Transformer
- Existing Large Evergreen Tree
- Existing Small Evergreen Tree
- Existing Large Tree
- Existing Small Tree
- Existing Tree Trunk
- Existing Pad Mounted Traffic Signal Control Box
- Existing Undefined Manhole
- Existing Undefined Pull Box
- Existing Undefined Pedestal
- Existing Undefined Valve
- Existing Undefined Pipe Vent
- Existing Gas Valve
- Existing Water Valve
- Existing Fuel Pipe Vent
- Existing Gas Pipe Vent
- Existing Sanitary Pipe Vent
- Existing Storm Drain Pipe Vent
- Existing Water Pipe Vent
- Existing Weather Station
- Existing Ground Water Well Bore Hole
- Existing Windmill or Tower
- Existing Witness Corner
- Flashing Beacon
- Flagger
- Pipe Mounted Flasher
- Sanitary Force Main with Valve

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE

This document was originally issued and sealed by Roger Weigel, Registration Number PE- 2930 , on 07/01/14 and the original document is stored at the North Dakota Department of Transportation

Symbols

D-101-32

- Pad Mounted Feed Point
- Pipe Mounted Feed Point with Pad
- Pole Mounted Feed Point
- Headwall
- Double Headwall with Vegitation Barrier
- Single Headwall with Vegitation Barrier
- Pole Mounted Head
- Sprinkler Head
- Fire Hydrant
- Inlet Type 1
- Inlet Type 2
- Double Inlet Type 2
- Inlet Grate Type 2
- Junction Box
- High Mast Light Standard 10 Luminaire
- High Mast Light Standard 3 Luminaire
- High Mast Light Standard 4 Luminaire
- High Mast Light Standard 5 Luminaire
- High Mast Light Standard 6 Luminaire
- High Mast Light Standard 7 Luminaire
- High Mast Light Standard 8 Luminaire
- High Mast Light Standard 9 Luminaire
- Relocate Light Standard
- Overhead Sign Structure Load Center
- Light Standard 100 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 1000 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 150 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 175 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 35 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 400 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 700 Watt High Pressure Sodium Vapor Luminaire
- Manhole
- Manhole 48 Inch
- Sanitary Force Main Manhole
- Sanitary Sewer Manhole
- Storm Drain Manhole
- Storm Drain Manhole with Inlet
- Reset Mile Post
- Mile Post Type A
- Mile Post Type B
- Mile Post Type C
- Right of Way Marker
- Tubular Marker
- Alignment Monument
- Iron Pin Reference Monument
- Object Marker Type I
- Object Marker Type II
- Object Marker Type III
- Caution Mode Arrow Panel
- Back to Back Vertical Panel Sign
- Double Direction Arrow Panel
- Left Directional Arrow Panel
- Right Directional Arrow Panel
- Sequencing Arrow Panel
- Truck Mounted Arrow Panel
- Power Pole
- Wood Pole
- Pedestrian Push Button Post
- Property Corner
- Pull Box
- Intelligent Transportation Pull Box
- Sanitary Pump
- Storm Drain Pump
- Reinforced Pavement
- Reinforced Concrete End Section 15 Inch
- Reinforced Concrete End Section 18 Inch
- Reinforced Concrete End Section 24 Inch
- Reinforced Concrete End Section 30 Inch
- Reinforced Concrete End Section 36 Inch
- Reinforced Concrete End Section 42 Inch
- Reinforced Concrete End Section 48 Inch
- Reinforced Concrete End Section 54 Inch
- Reset Right of Way Marker
- Reset USGS Marker
- Right of Way Markers
- Riser 30 Inch
- Continuous Split Barrel Sample (CSB)
- Flight Auger Sample (FA)
- Split Barrel Sample (SB)
- Thinwall Tube Sample
- Highway Sign
- SNOW GATE 18 FT
- SNOW GATE 28 FT
- SNOW GATE 40 FT
- Standard Penetration Test (N)
- Transformer
- Inclinometer Tube (Incl)
- Underdrain Cleanout
- Excavation Unit
- Water Valve

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE

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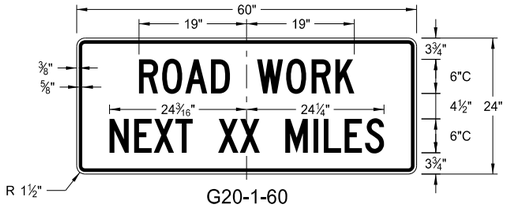
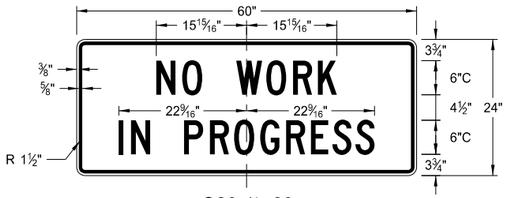
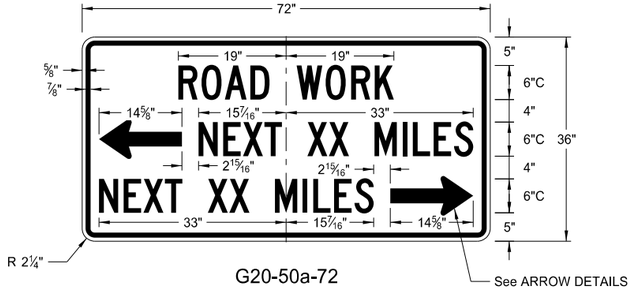
CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS



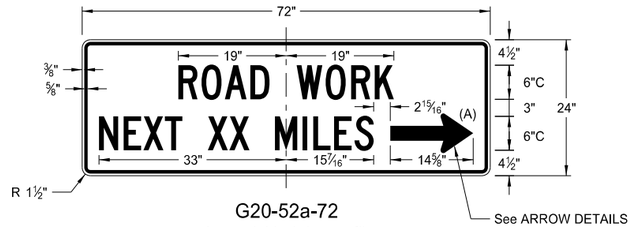
G20-1-60
Legend: black (non-refl)
Background: orange



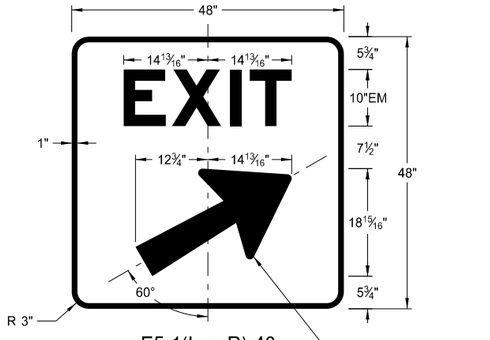
G20-1b-60
Legend: black (non-refl)
Background: orange



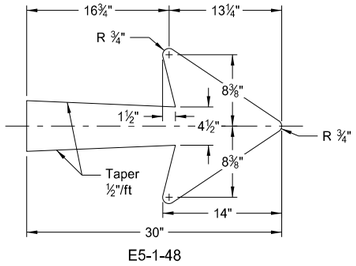
G20-50a-72
Legend: black (non-refl)
Background: orange



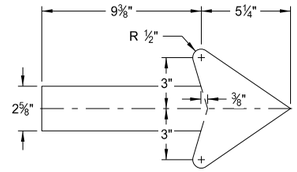
G20-52a-72
Legend: black (non-refl)
Background: orange



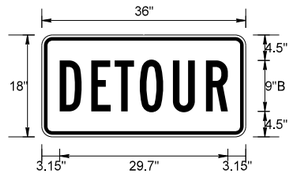
E5-1(L or R)-48
Legend: white
Background: green (orange optional)



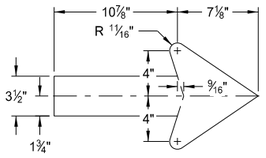
E5-1-48



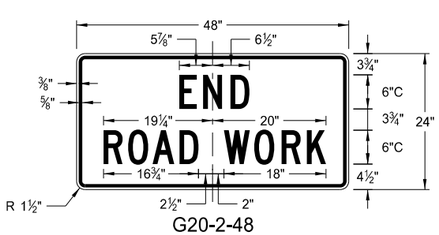
G20-50a-72
G20-52a-72



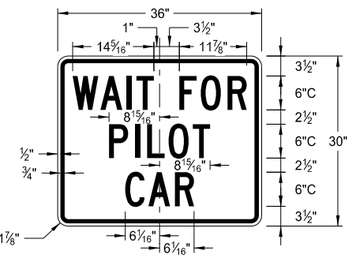
M4-8-36
Legend: black (non-refl)
Background: orange



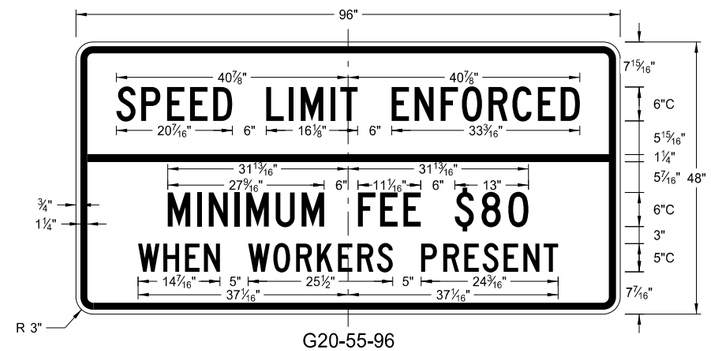
M4-9(L or R)-30
Right or Left



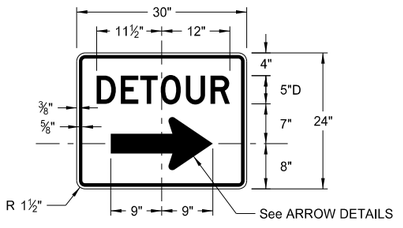
G20-2-48
Legend: black (non-refl)
Background: orange



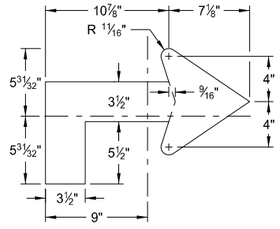
G20-4b-36
Legend: black (non-refl)
Background: orange



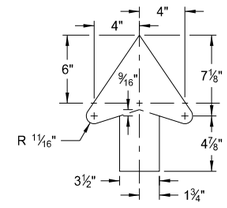
G20-55-96
Legend: black (non-refl)
Background: orange



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



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



M4-9-30
Straight

ARROW DETAILS

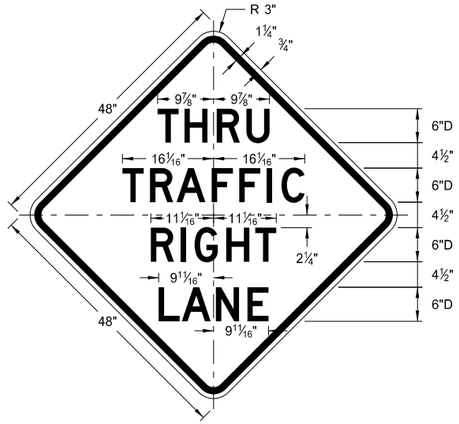
NOTES:

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

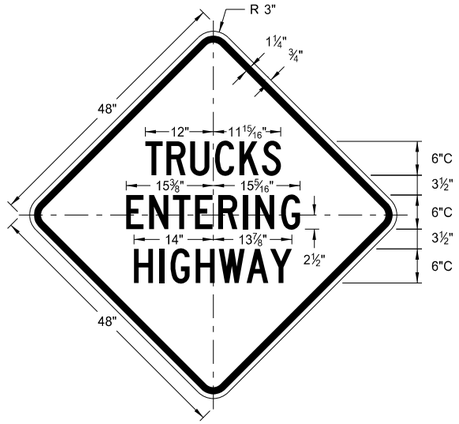
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Added sign & background color
10-03-19	New Design Engineer PE Stamp

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 10/03/19 and the original document is stored at the North Dakota Department of Transportation

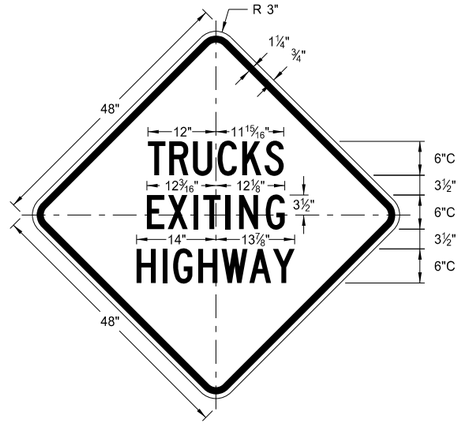
CONSTRUCTION SIGN DETAILS
WARNING SIGNS



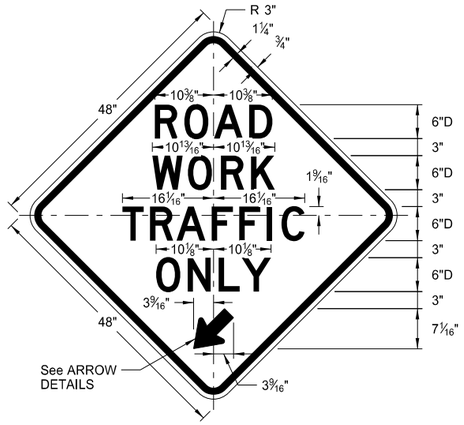
W5-8-48
Legend: black (non-refl)
Background: orange



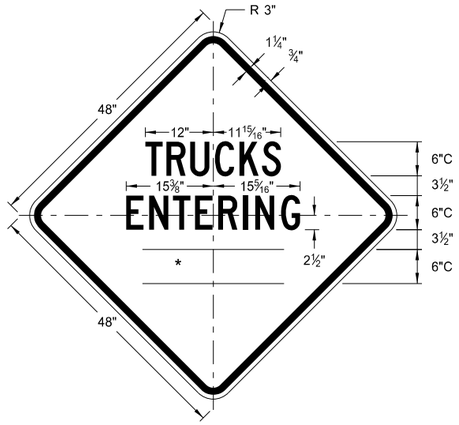
W8-53-48
Legend: black (non-refl)
Background: orange



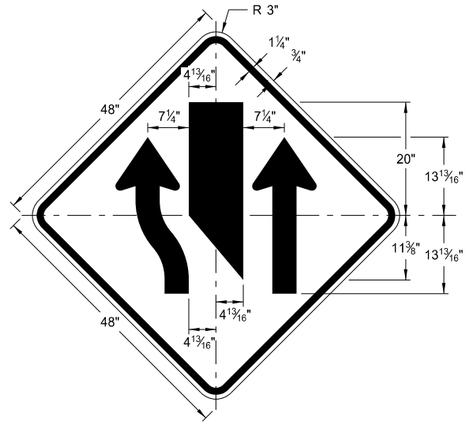
W8-56-48
Legend: black (non-refl)
Background: orange



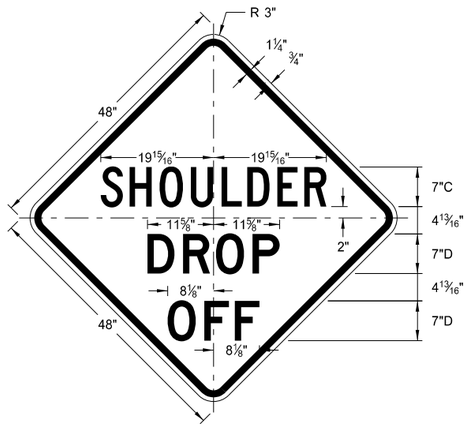
W5-9-48
Legend: black (non-refl)
Background: orange



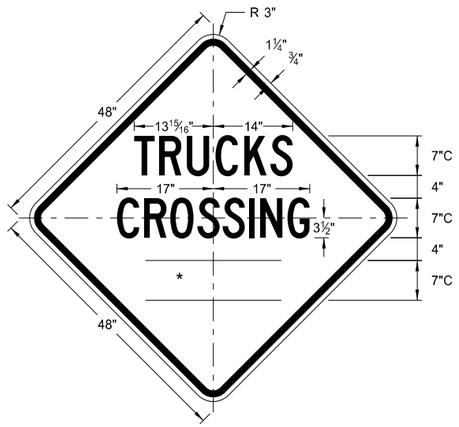
W8-54-48
Legend: black (non-refl)
Background: orange



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



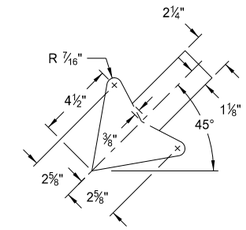
W8-9a-48
Legend: black (non-refl)
Background: orange



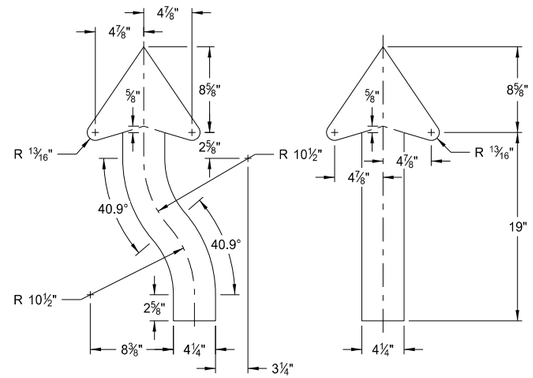
W8-55-48
Legend: black (non-refl)
Background: orange

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

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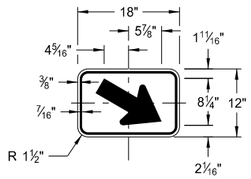
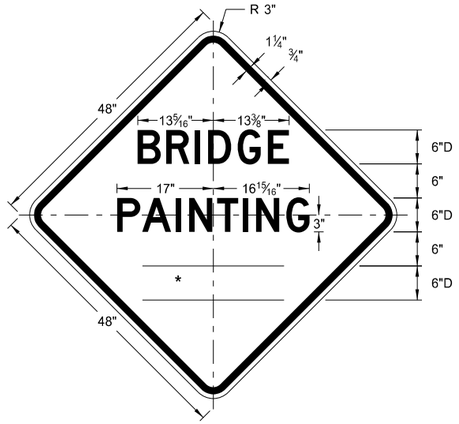
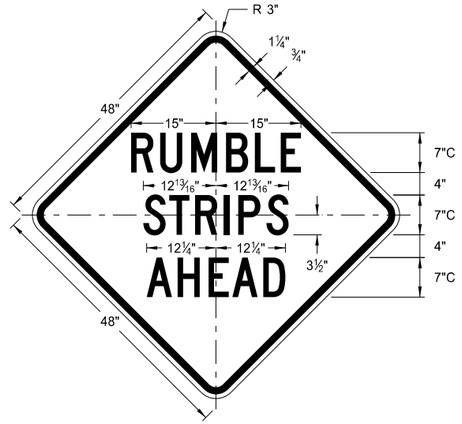
CONSTRUCTION SIGN DETAILS
WARNING SIGNS



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



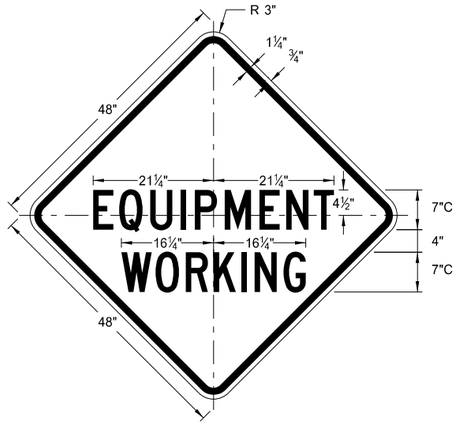
W21-50-48
Legend: black (non-refl)
Background: orange



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

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

* DISTANCE MESSAGES



W20-51-48
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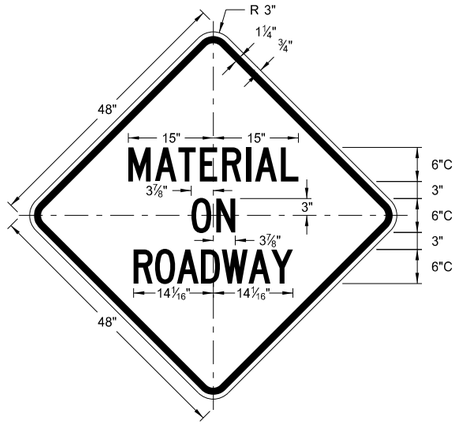

W21-51-48
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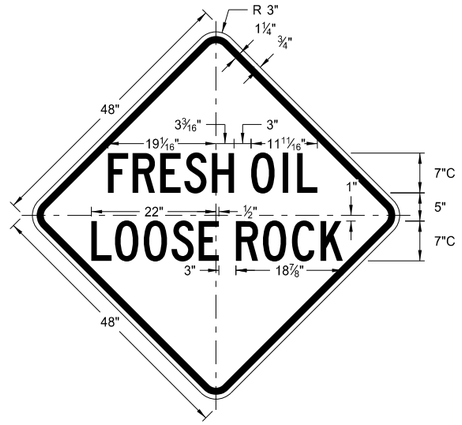
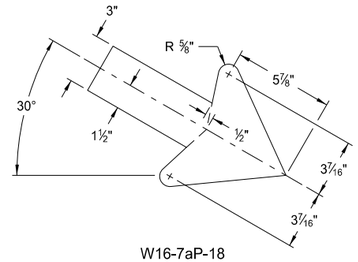
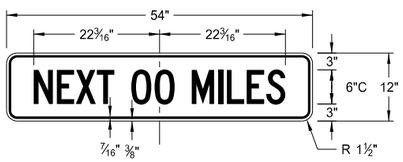
Background: orange



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



W16-7aP-18



W20-52P-54
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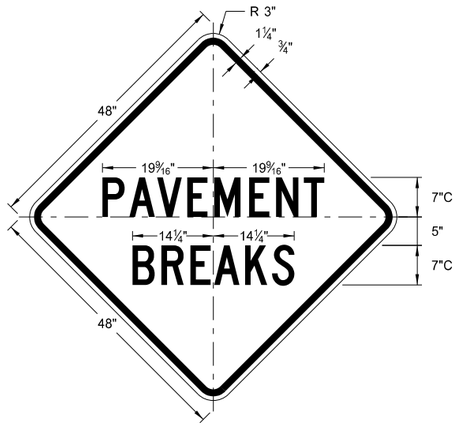
Background: orange



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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
5-31-18	
REVISIONS	
DATE	CHANGE
11-01-19	Added details for sign W16-7aP-18.

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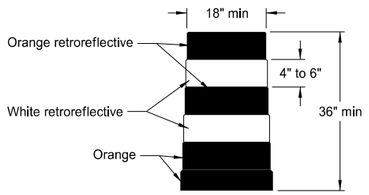
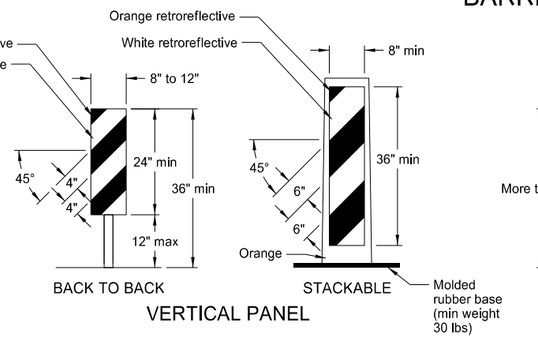
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



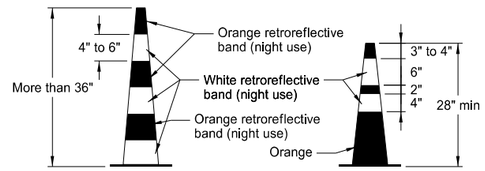
DELINEATOR DRUM

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.



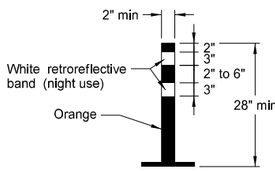
VERTICAL PANEL

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.



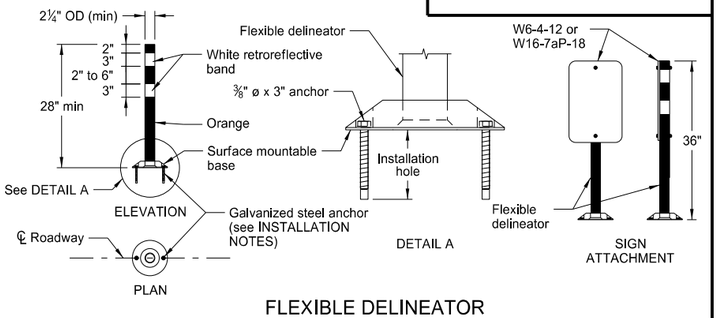
TRAFFIC CONE

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

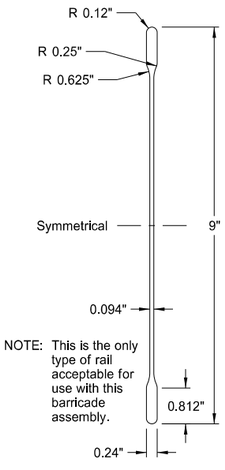
Provide retroreflectorization of tubular markers more than 42" in height by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



FLEXIBLE DELINEATOR

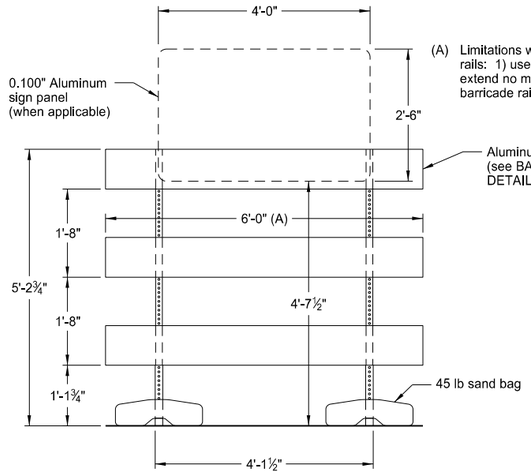
INSTALLATION NOTES:

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.



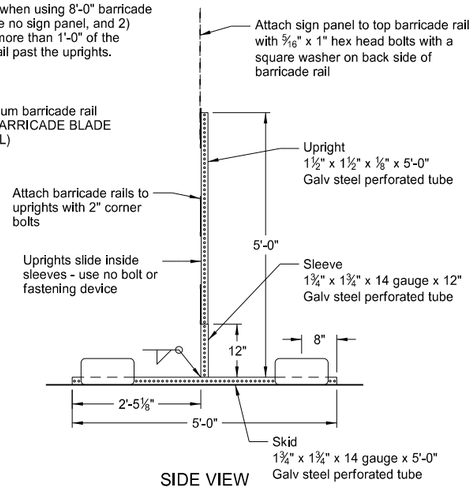
NOTE: This is the only type of rail acceptable for use with this barricade assembly.

BARRICADE BLADE DETAIL



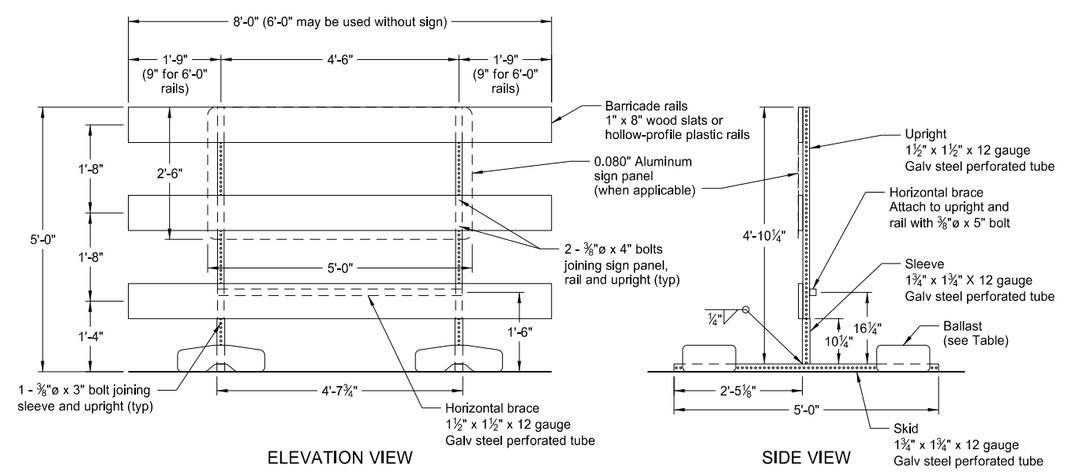
(A) Limitations when using 8'-0" barricade rails: 1) use no sign panel, and 2) extend no more than 1'-0" of the barricade rail past the uprights.

ELEVATION VIEW



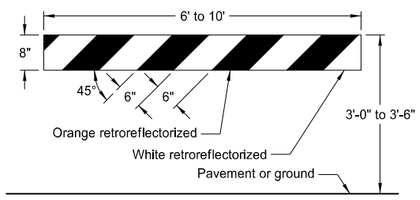
SIDE VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

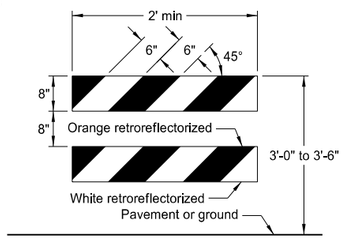


BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

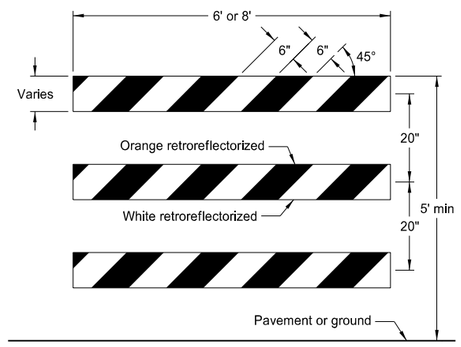
NOTE: For barricade markings use alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Place retroreflective sheeting on both sides of the rails with a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the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



TYPE I BARRICADE

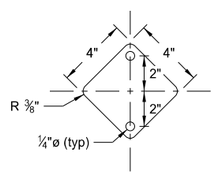


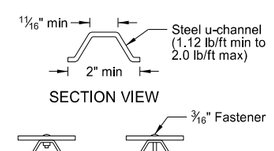
TYPE II BARRICADE

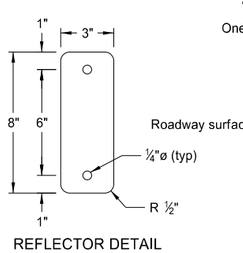


TYPE III BARRICADE

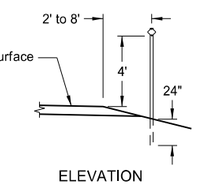
BARRICADE RAIL DETAILS







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.

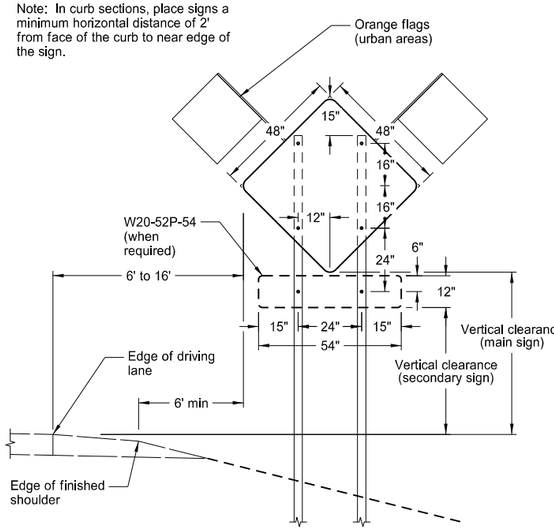
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17 11-01-19	Updated to active voice Revised details for Flexible Delineator

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

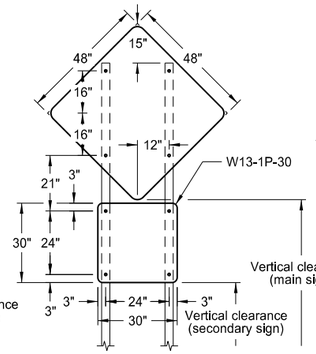
CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

D-704-14

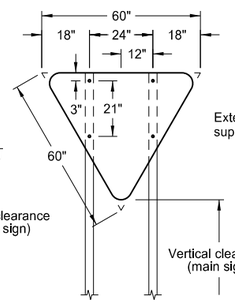
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



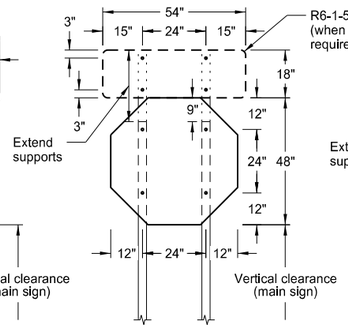
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



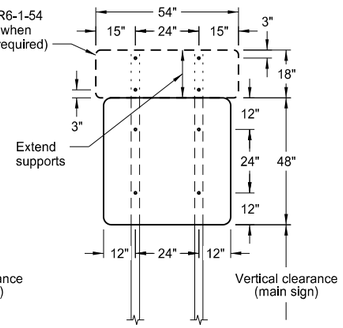
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



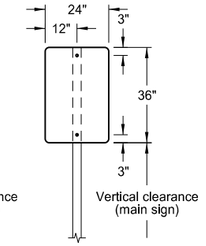
R1-2-60 - YIELD SIGN



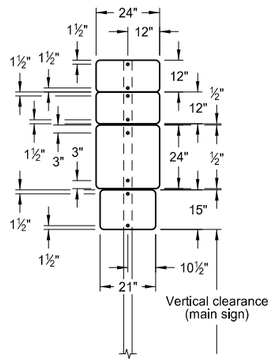
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



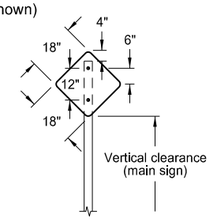
48" x 48" SIGN
(with R6-1-54 sign as required)



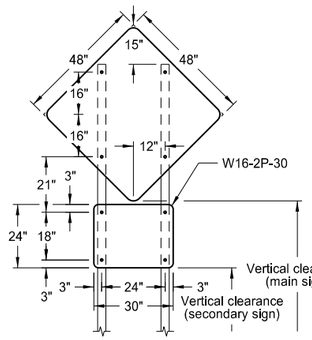
24" x 36" SIGN



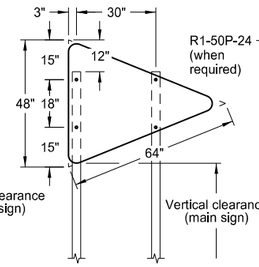
24" x 24"
ROUTE MARKER
ASSEMBLY



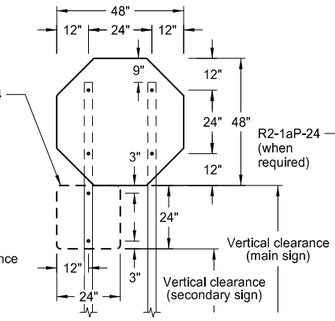
18" x 18"
DIAMOND SIGN



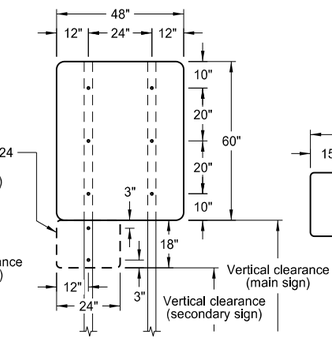
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



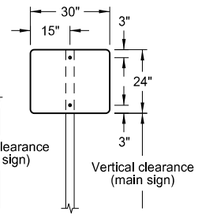
W14-3-64 - PENNANT SIGN



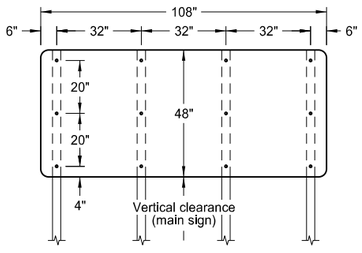
R1-1-48 - STOP SIGN
(with R1-50P-24 sign as required)



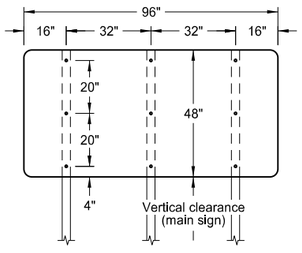
48" x 48" SIGN
(with R2-1aP-24 sign as required)



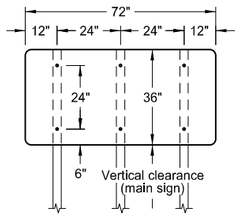
30" x 24" SIGN



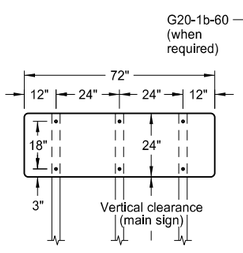
108" x 48" SIGN



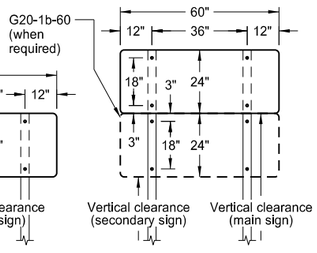
96" x 48" SIGN



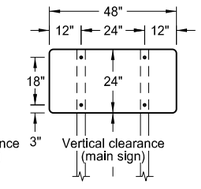
72" x 36" SIGN



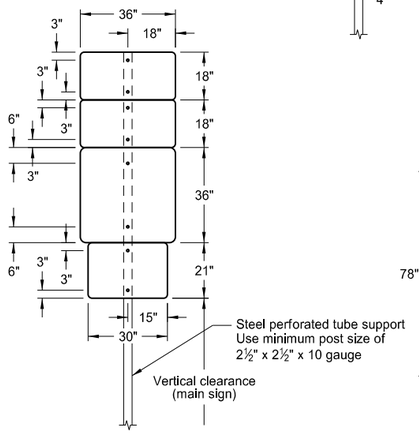
72" x 24" SIGN



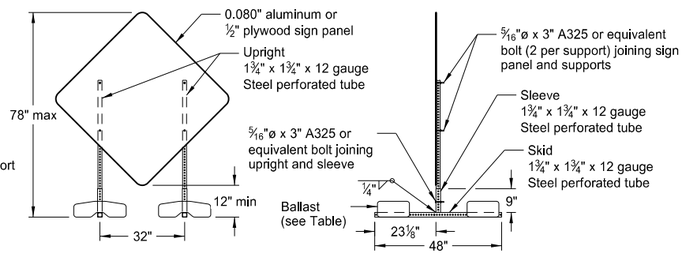
60" x 24" SIGN



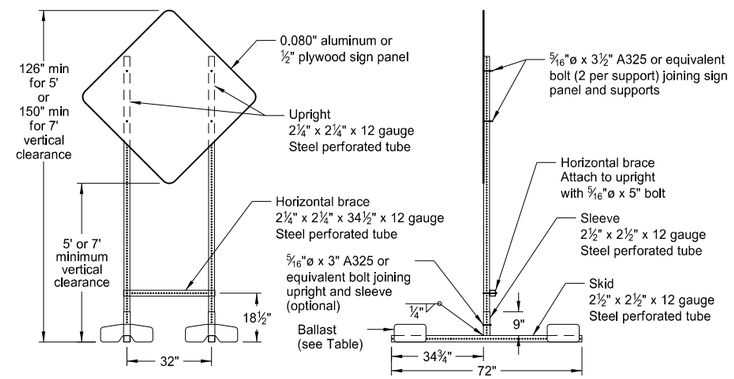
48" x 24" SIGN



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

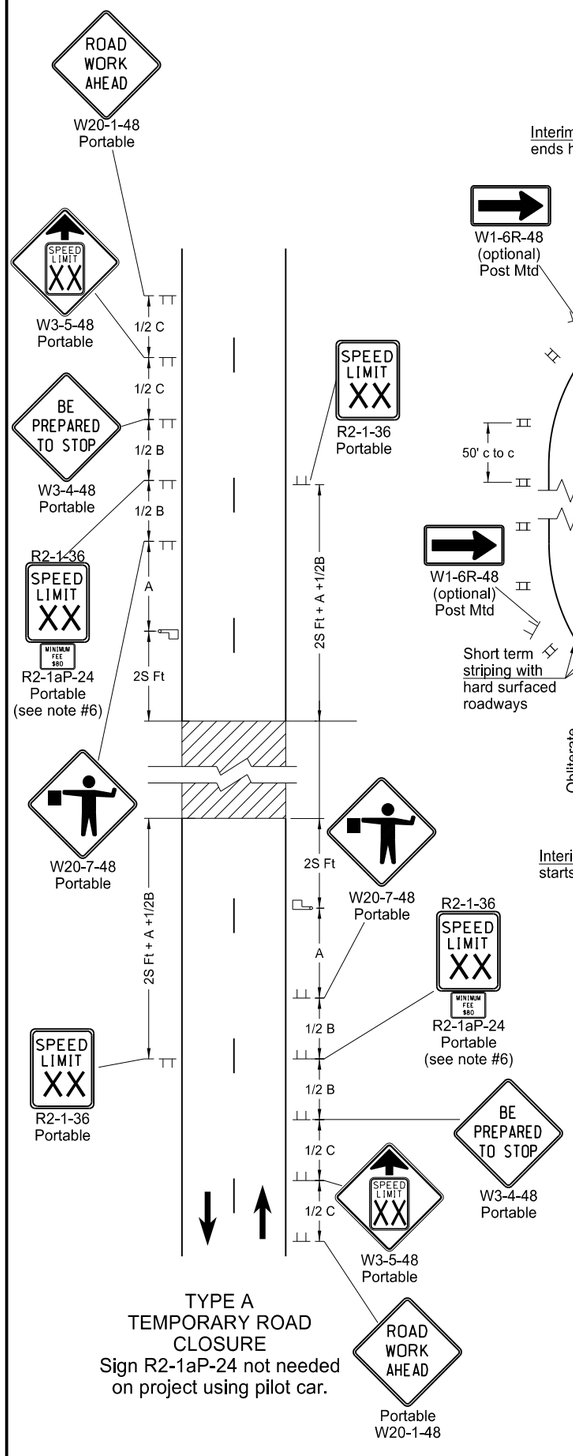
Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of skids.

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

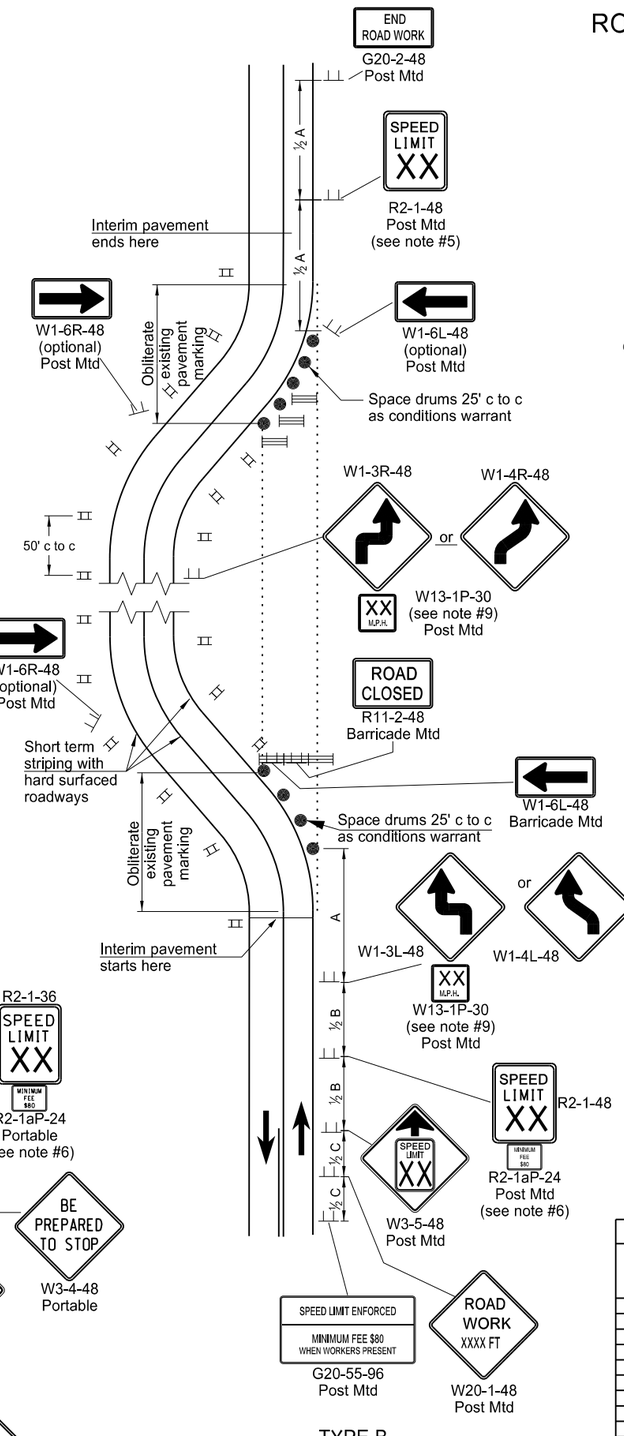
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

ROAD CLOSURE LAYOUTS

D-704-15

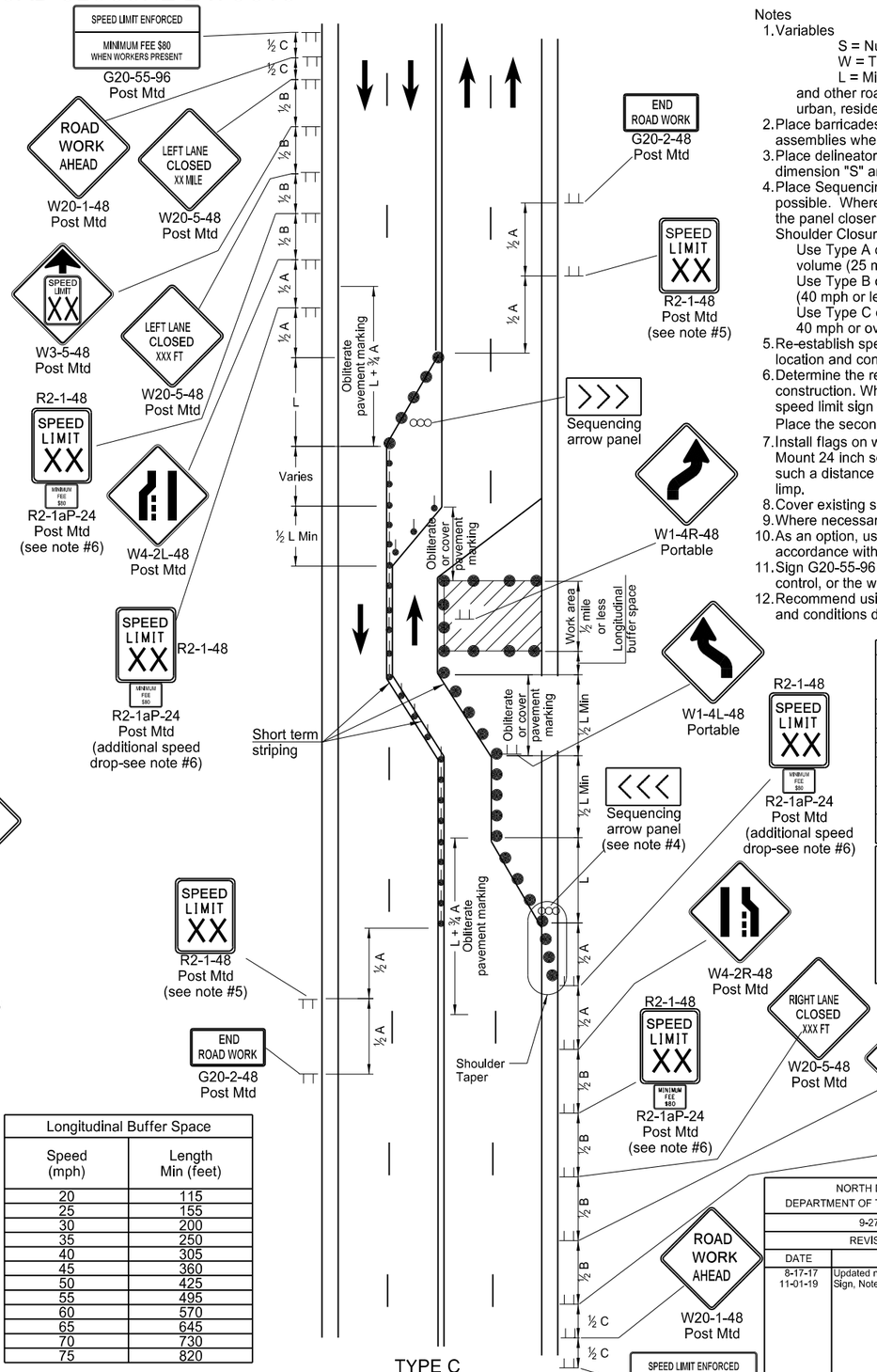


TYPE A
TEMPORARY ROAD CLOSURE
Sign R2-1aP-24 not needed on project using pilot car.



TYPE B
ROAD CLOSURE WITH A DIVERSION
Two lane highway where roadway is closed and detour provided (signing shown for one direction only). Use on bridge and culvert installation with ½ mile or less closure.

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



TYPE C
HALF ROAD CLOSURE ON A MULTI-LANE, HIGH SPEED HIGHWAY
4 lane undivided highway with half the roadway closed.

Notes

1. Variables
   S = Numerical value of speed limit or 85th percentile.
   W = The width of taper in feet.
   L = Minimum length of taper, S x W for freeways, expressways, and other roads with speeds of 45 mph or greater, or W x $S^2/60$ for urban, residential, and other streets with speeds of 40 mph or less.
2. Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
3. Place delineator drums, barricades or cones for tapering traffic at dimension "S" and for tangents space at 2 times dimension "S".
4. Place Sequencing Arrow Panels at the beginning of the taper when possible. Where shoulder width does not provide sufficient room, move the panel closer to the work area and place on roadway surface. See Shoulder Closure Standard Drawing.
   Use Type A on roadways with slow moving traffic speeds and low volume (25 mph or less and 750 ADT or less).
   Use Type B on roadways with moderate traffic speeds and volumes (40 mph or less and 5000 ADT or less).
   Use Type C on roadways with high traffic speeds and volumes (over 40 mph or over 5000 ADT).
5. Re-establish speed. Determine exact speed limit in the field, dependent on location and conditions.
6. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½ B.
7. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
8. Cover existing speed limit signs within reduced speed zones.
9. Where necessary, engineer will determine safe speed.
10. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
11. Sign G20-55-96 is not required if this standard is part of other traffic control, 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 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

KEY

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-27-13

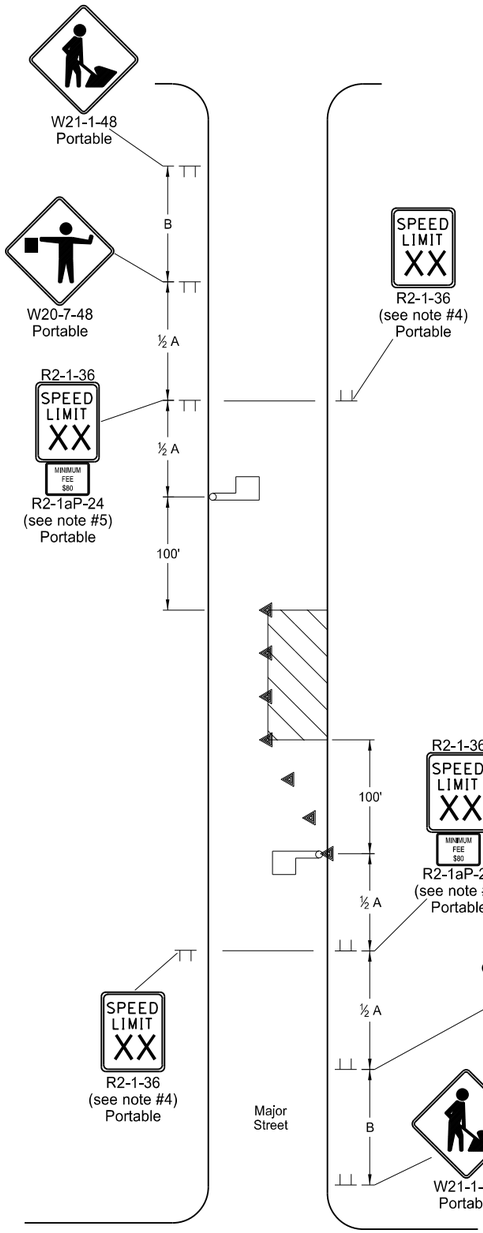
REVISIONS

DATE	CHANGE
8-17-17	Updated notes & Speed Limit signs
11-01-19	Sign, Notes, and Pvmt Mkg updates

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/01/19 and the original document is stored at the North Dakota Department of Transportation

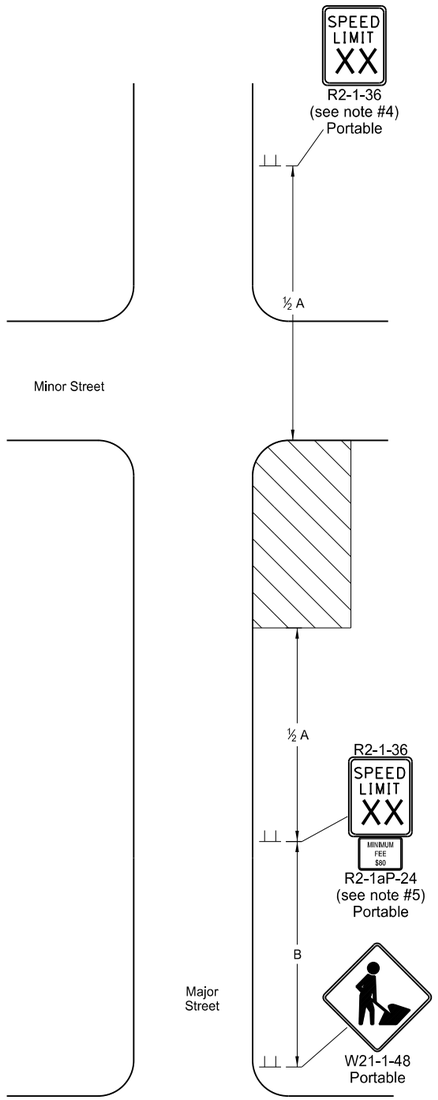
LANE CLOSURES ON URBAN STREETS LAYOUTS

D-704-25



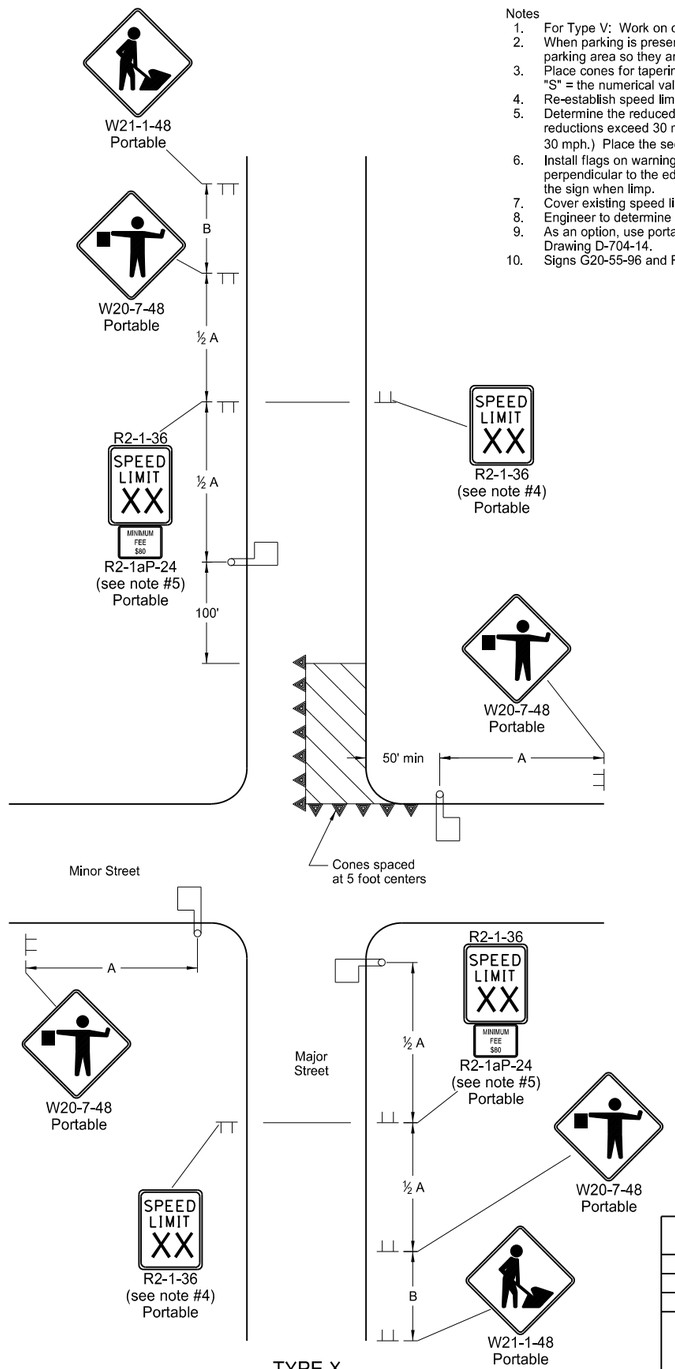
TYPE V
LANE CLOSURE ON URBAN STREET

Portion of roadway closed to traffic only
during daylight hours (mid block location).



TYPE W
WORK BEYOND CURB ON URBAN STREET

Work area outside driving lane and no closure necessary.



TYPE X
LANE CLOSURE NEAR INTERSECTION ON URBAN STREET

Portion of roadway closed to traffic only
during daylight hours (end block location).

Notes

1. For Type V: Work on one side of roadway at a time so as not to block off more than one lane of traffic.
2. When parking is present, place signs so they are entirely visible above parked vehicles or at the edge of the parking area so they are visible to oncoming traffic. Place signs on portable mounts when located on roadway.
3. Place cones for tapering traffic at 3 equal spaces and cones for tangents at dimension "S".
   "S" = the numerical value of speed limit.
4. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
5. 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.
6. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inches 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.
7. Cover existing speed limit signs within reduced speed zones.
8. Engineer to determine safe speed, when necessary.
9. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
10. Signs G20-55-96 and R2-1aP-24 are not required for urban projects.

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 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

KEY

Sign | Work area | Cones | Flagger

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

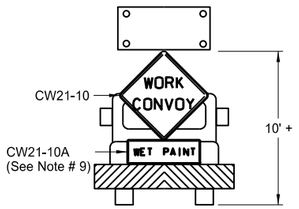
9-27-13

REVISIONS

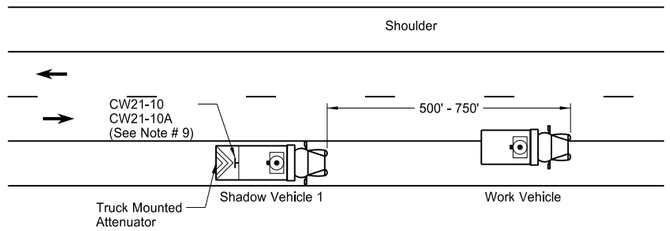
DATE	CHANGE
8-17-17	Updated notes & removed signs
11-01-19	Revised note & added Min Fee sign

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

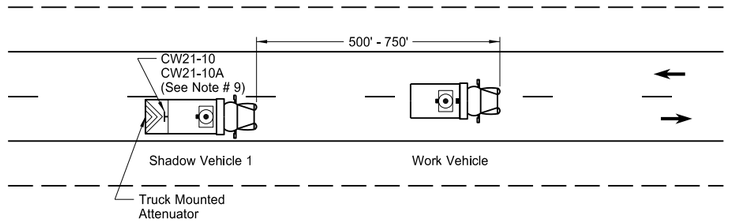
MOBILE OPERATION
(PAVEMENT MARKING)



Typical Shadow Vehicle 1
Two-Way Roaday

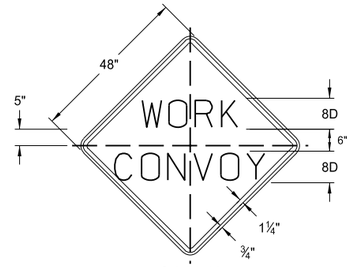


Two-Way Roadway with Paved Shoulders

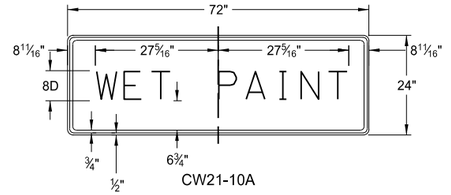


Two-Way Roadway without Paved Shoulders

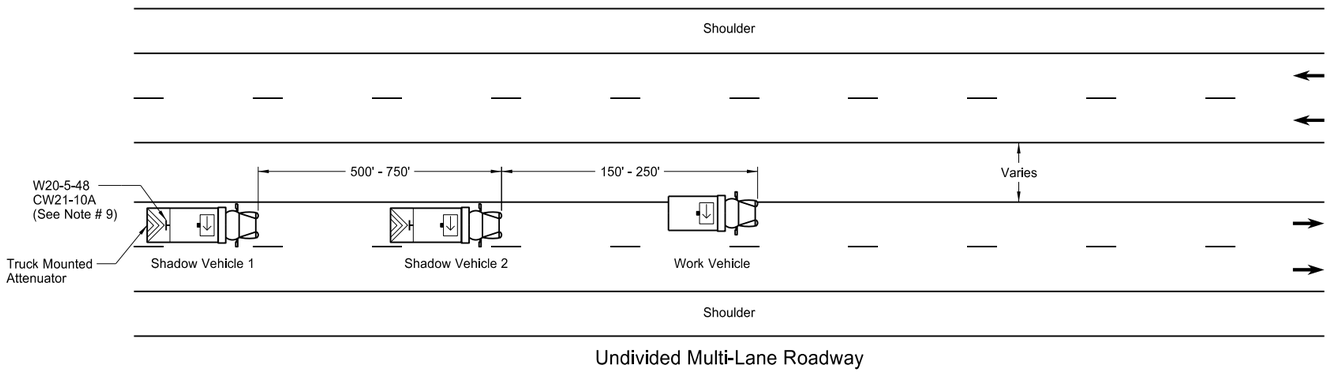
Sign Details



CW21-10

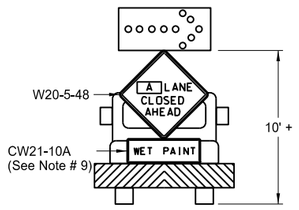


CW21-10A



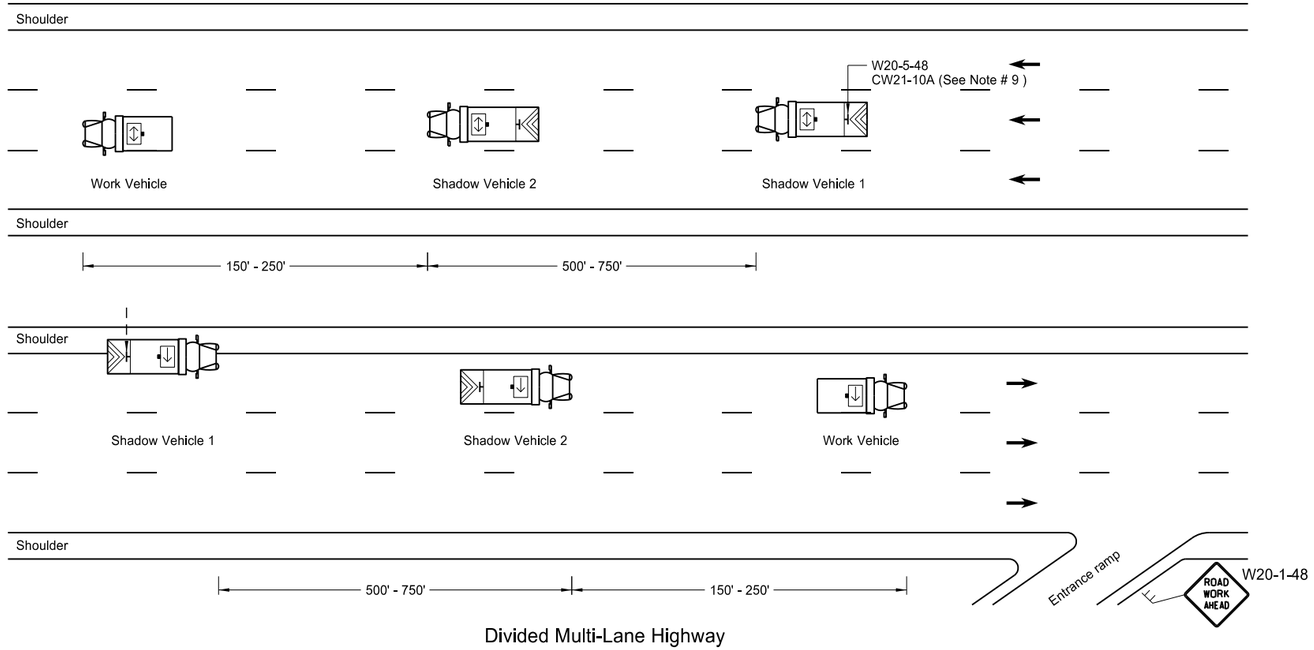
Undivided Multi-Lane Roadway

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

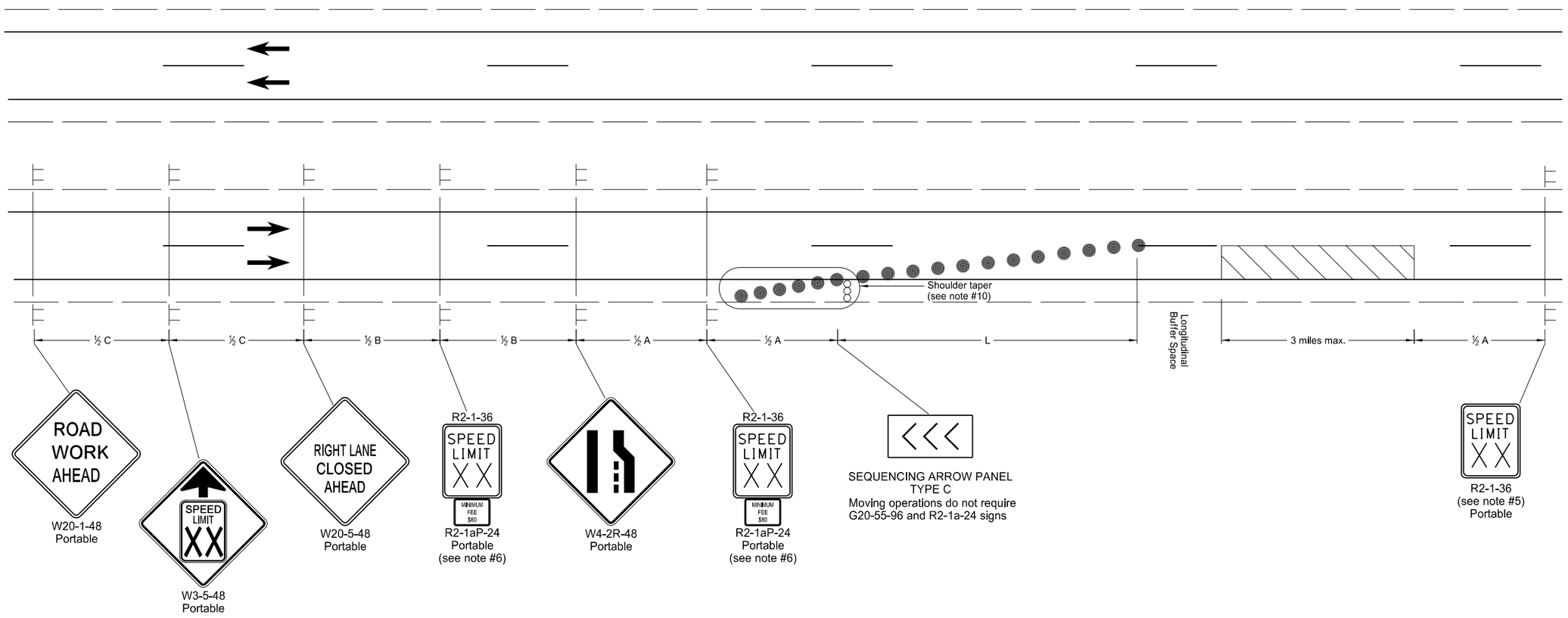
- Sign
- Truck mounted attenuator
- Flashing arrow panels:
  - Right directional
  - Left directional
  - Double arrow directional
  - Caution Mode

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

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/08/19 and the original document is stored at the North Dakota Department of Transportation

SIGN LAYOUT FOR ONE LANE CLOSURE DIVIDED HIGHWAY MOVING OPERATION

D-704-32



Notes
1. Provide an additional sequencing arrow panel in the closed lane, near the work area, if the moving operation is not visible to the motorist from the end of the taper.
2. Variables
   S = Numerical value of speed limit or 85th percentile.
   W = The width of the taper.
   L = Minimum length of taper, S x W for freeways, expressways, and all other roads with speeds of 45 mph or greater, or W x S^2 /60 for urban, residential, and other streets with speeds of 40 mph or less.
3. Space delineator drums for tapering traffic at dimension "S".
4. Sequencing Arrow Panels
   Panels should normally be placed at the beginning of the taper. Where shoulder width does not provide sufficient room, the panel should be moved closer to the work area so that it can be placed on the roadway surface.
   Type A shall be used on roadways with slow moving traffic speeds and low volume (25 mph & 750 ADT or less).
   Type B shall be used on roadways with moderate traffic speeds and volumes (40 mph and 5000 ADT or less).
   Type C shall be used on roadways with high traffic speeds and volumes (over 40 mph and 5000 ADT).
5. Re-establish speed limit. Determine the exact speed limit in the field, dependent on location and conditions.
6. Determine the reduced speed limit the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½ B.
7. Install flags on warning signs in urban areas when signs are not portable, Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
8. Cover existing speed limit signs within a reduced speed zone.
9. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
10. Provide shoulder taper when shoulder is 8' or wider.
11. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

KEY

Sign		Work area	
Delineator Drums		Sequencing arrow panel	

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 75 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

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-27-13

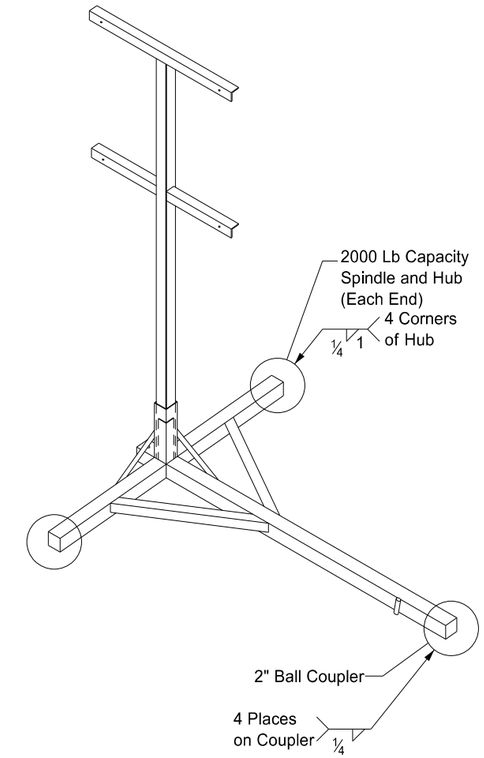
REVISIONS

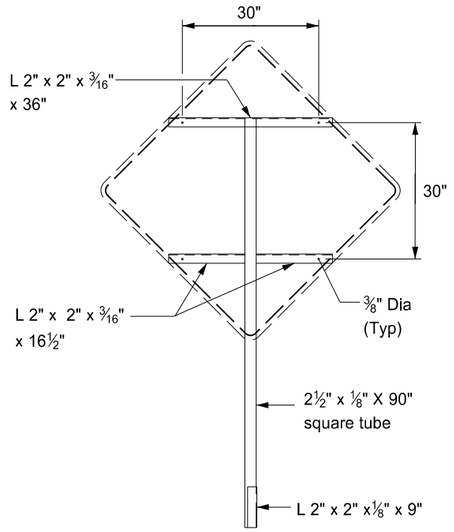
DATE	CHANGE
6-24-14	Revised Note 9
8-17-17	Updated notes & sign numbers
11-01-19	Added sign, revised note & sign #

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

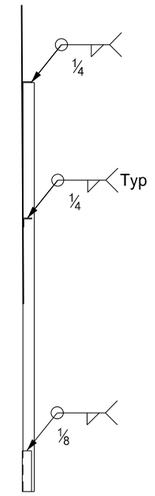
PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50



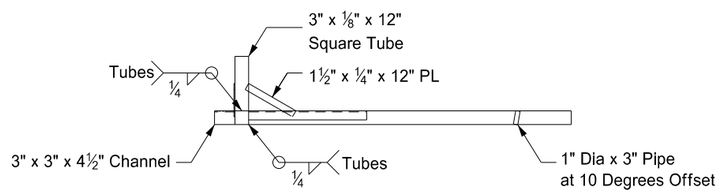


FRONT

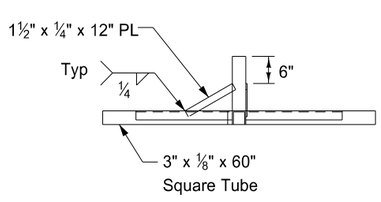


RIGHT

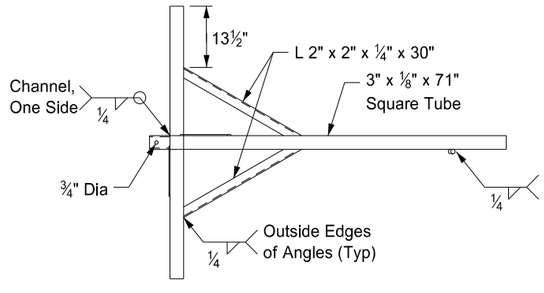
SIGN SUPPORT



FRONT



RIGHT



TOP

TRAILER

Notes:

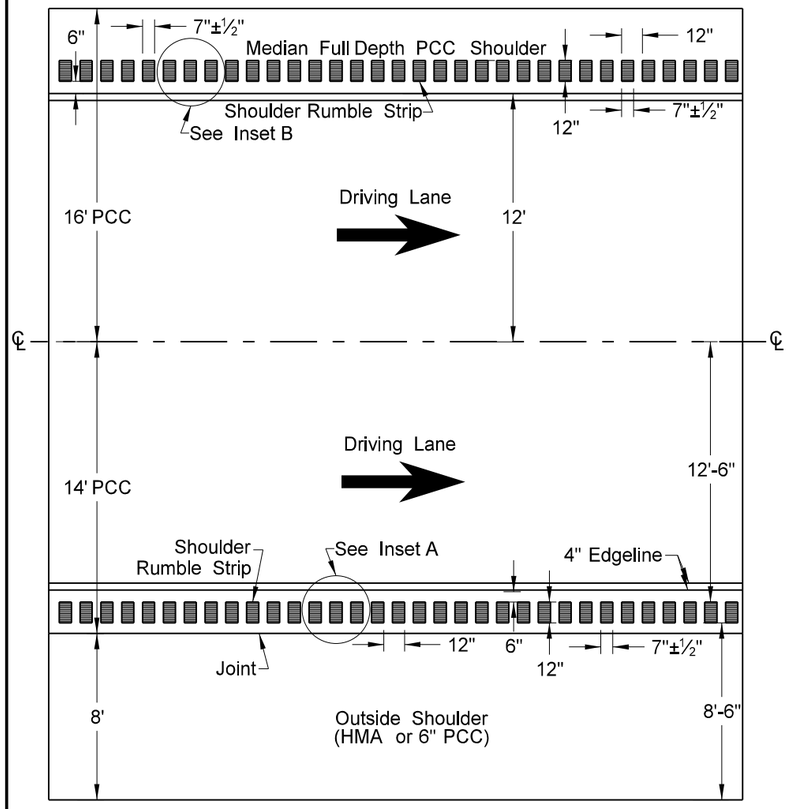
1. The maximum weight of the assembly is 250 pounds.
2. Use a 14" wheel and tire.
3. Automotive and equipment axle assemblies may not be used for trailer-mounted sign supports.
4. Other NCHRP 350 crash tested assemblies are acceptable.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE

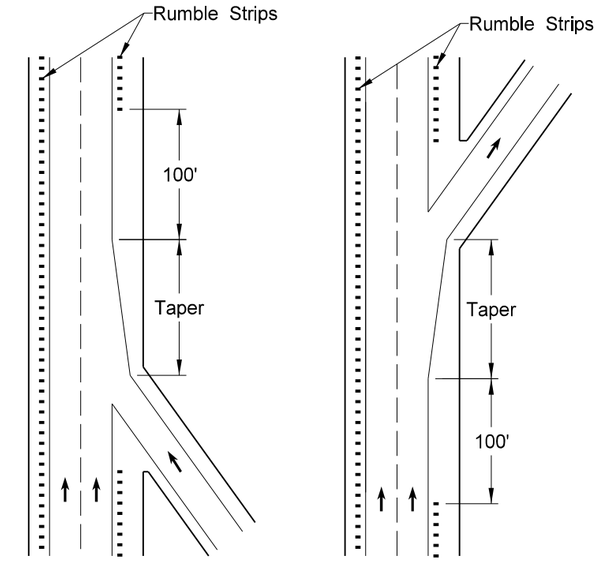
This document was originally issued and sealed by Roger Weigel Registration Number PE-2930, on 11/23/10 and the original document is stored at the North Dakota Department of Transportation

RUMBLE STRIPS
INTERSTATE HIGHWAYS

D-760-1



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

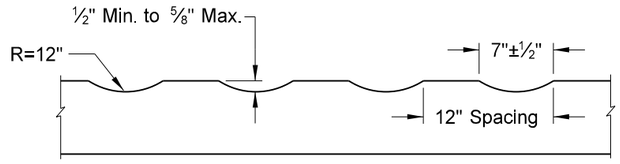


Entrance Ramp

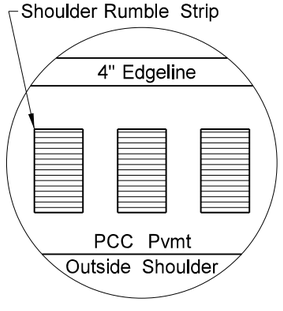
Exit Ramp

NOTES:

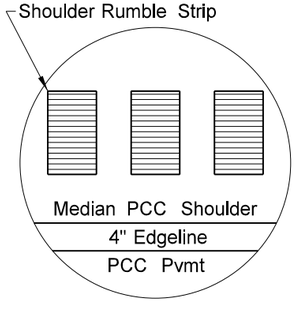
1) Discontinue rumble strips through ramps and 100' before and after ramp tapers as shown below.



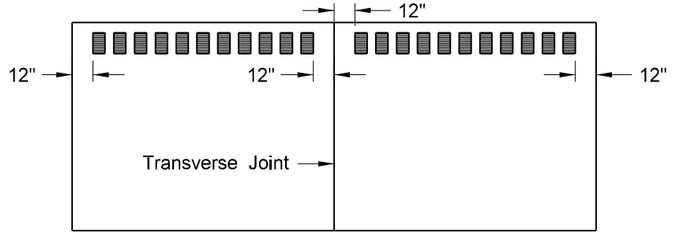
Rumble Strip Profile - PCC Pavements



Inset A - Shoulder Rumble Strip



Inset B - Shoulder Rumble Strip

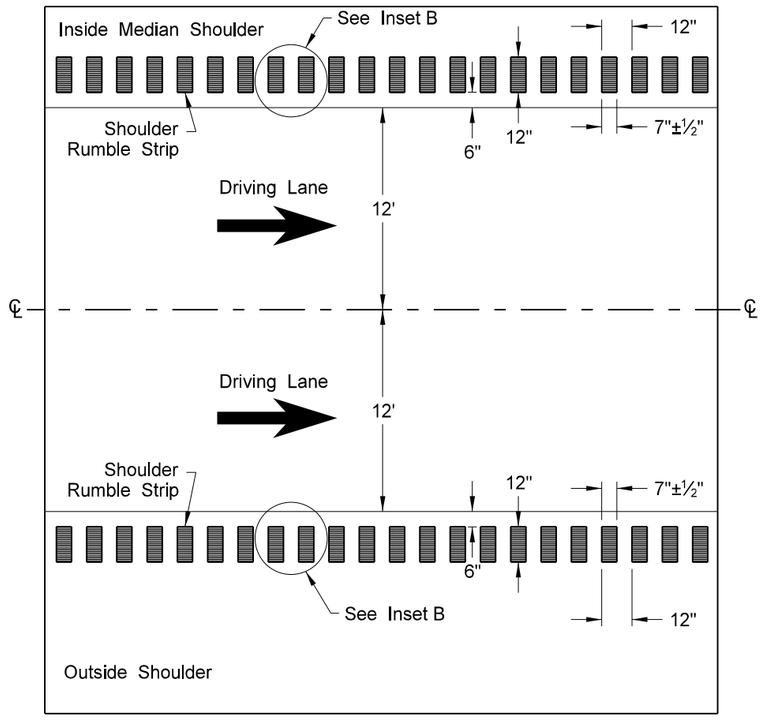


Discontinue rumble strip approx 12" each side of PCC transverse joint

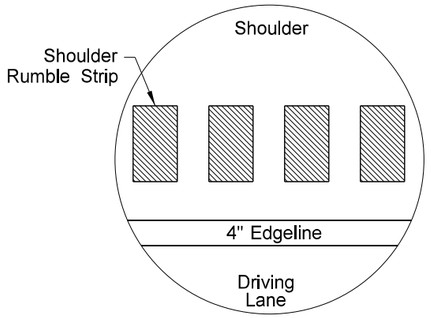
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-29-09	
REVISIONS	
DATE	CHANGE
2-25-10	Note 4 was added.
9-8-11	Revised Notes and D-760-1.
8-30-18	Revised drawings for clarity.
10-25-19	Added missing dimensions.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 10/25/19 and the original document is stored at the North Dakota Department of Transportation

RUMBLE STRIPS
DIVIDED HIGHWAYS (NON-INTERSTATE)



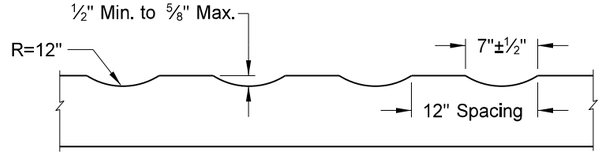
Divided Highways (Non-Interstate)



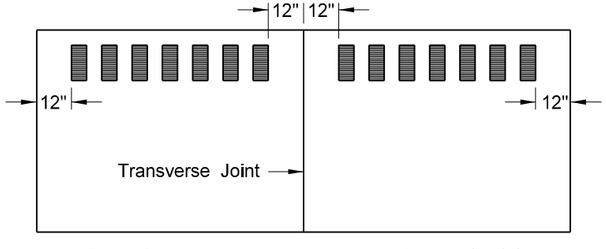
Inset B - Shoulder Rumble Strip

NOTES:

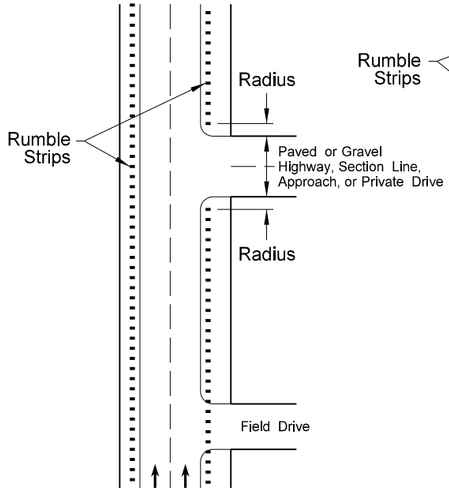
1) Discontinue rumble strips through the entire length of turn lanes & ramps, 100' before turn lane tapers, 100' before or after ramp tapers, and at the radius of a paved or gravel highway, section line, approach, or private drive as shown below.



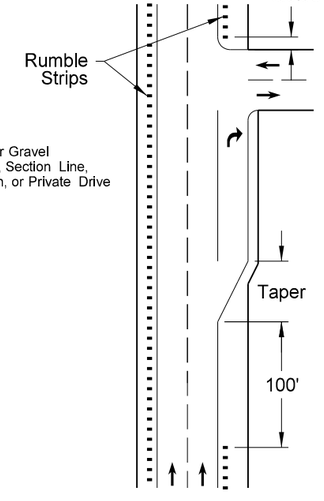
Profile of Rumble Strips - Bituminous and PCC Pavements



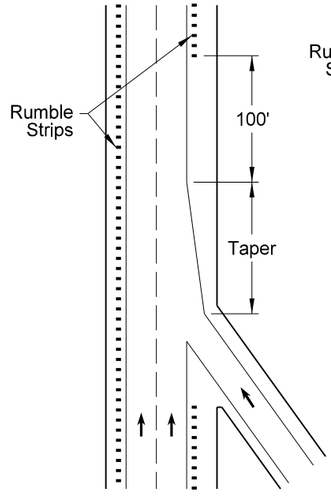
Discontinue rumble strip approx. 12" on both sides of PCC transverse joint



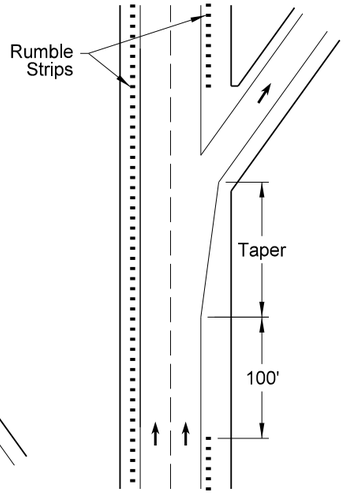
Entrance Roadways



Turn Lane (Right & Left)



Entrance Ramp



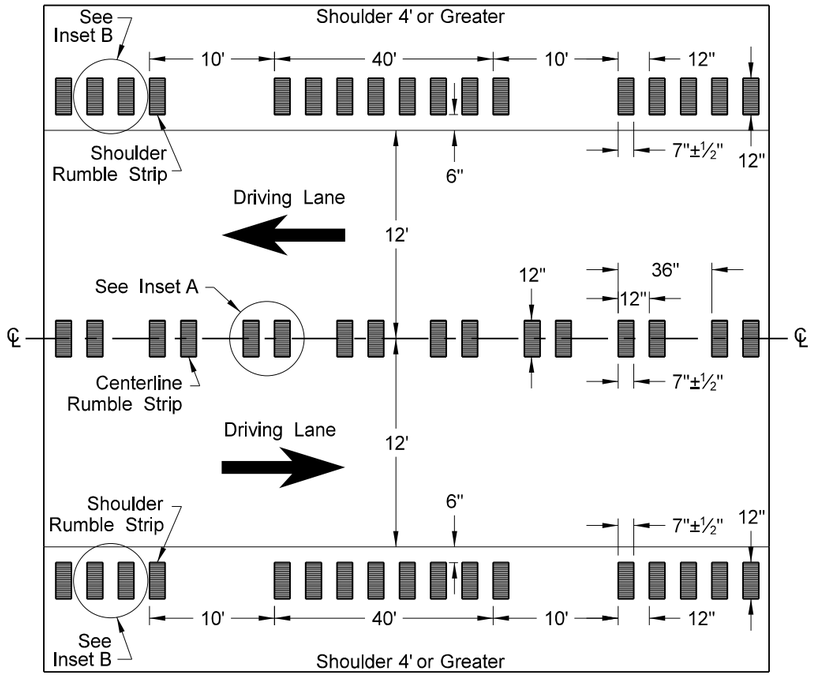
Exit Ramp

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-29-09	
REVISIONS	
DATE	CHANGE
2-25-10	Note 4 was added.
9-8-11	Revised Notes and D-760-2.
8-27-19	New Design Engr PE Stamp.

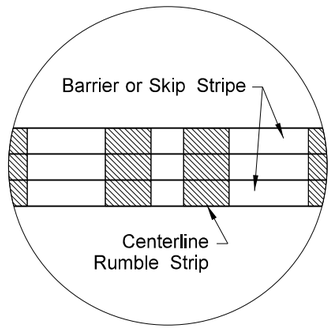
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683 , on 8/27/19 and the original document is stored at the North Dakota Department of Transportation

RUMBLE STRIPS UNDIVIDED HIGHWAYS (SHOULDERS 4' OR GREATER)

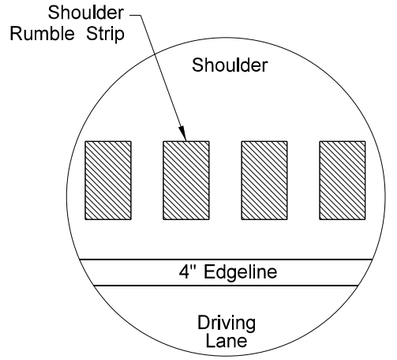
D-760-3



Undivided Highways (Shoulders 4' or Greater)



Inset A - Centerline Rumble Strip

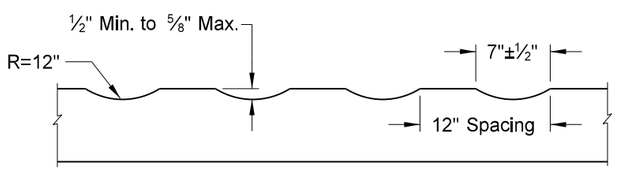


Inset B - Shoulder Rumble Strip

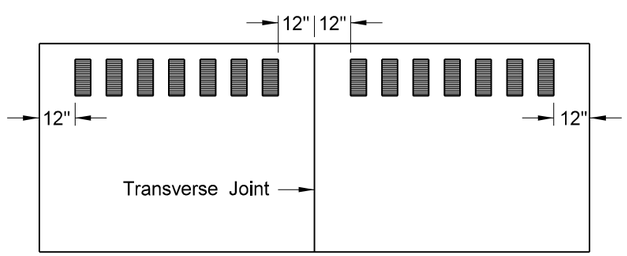
NOTES:

1) Discontinue shoulder rumble strips through the entire length of right turn lanes, 100' before right turn lane tapers, and at the radius of a paved or gravel highway, section line, approach, or private drive.

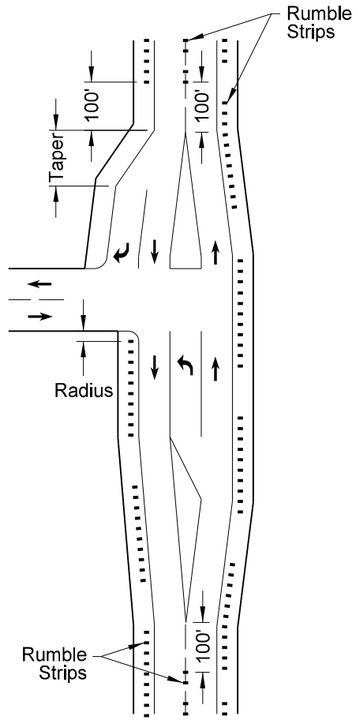
2) Discontinue centerline rumble strips through the entire length of left turn lanes, 100' before left turn lane tapers and median islands, and 100' before and after a paved or gravel highway, section line, approach, or private drive.



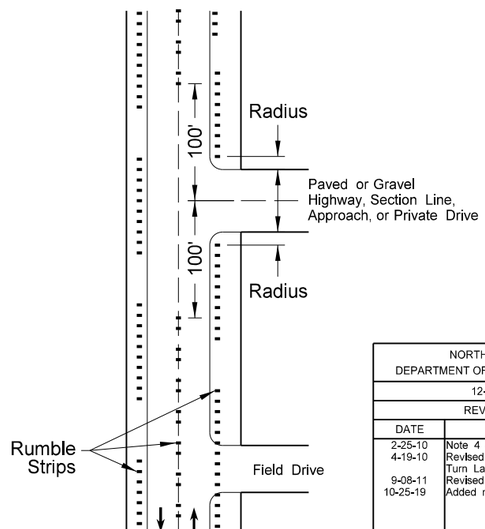
Profile of Rumble Strips - Bituminous and PCC Pavements



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



Turn Lane (Right & Left)

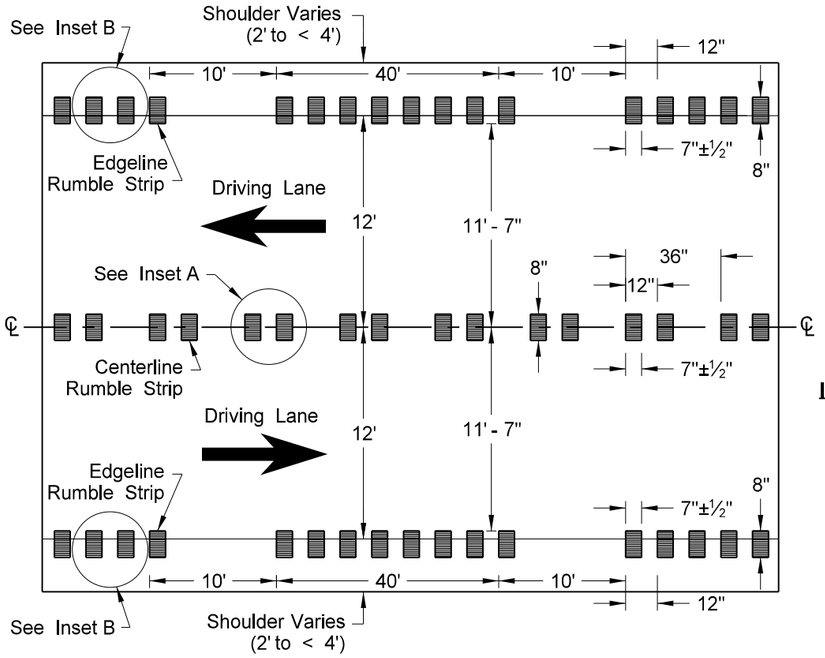


Entrance Roadways

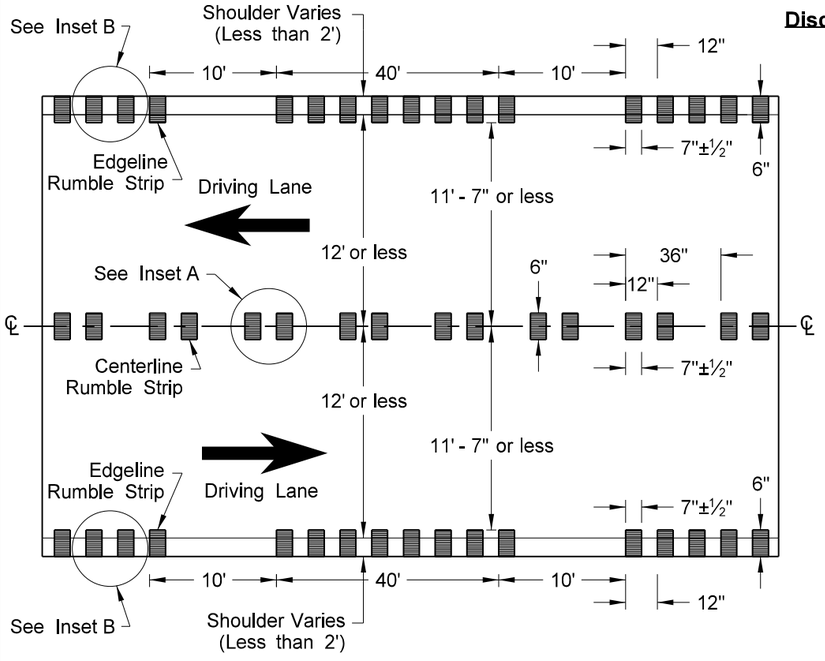
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-29-09	
REVISIONS	
DATE	CHANGE
2-25-10	Note 4 was added.
4-19-10	Revised Note 5, Note 6, and Turn Lane (Right & Left).
9-08-11	Revised Notes and D-760-3.
10-25-19	Added missing dimensions.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 10/25/19 and the original document is stored at the North Dakota Department of Transportation

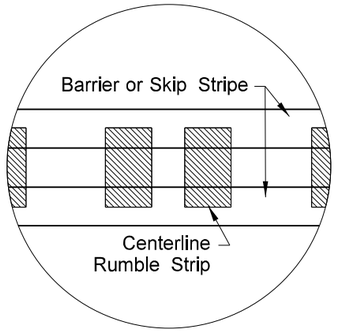
RUMBLE STRIPS
UNDIVIDED HIGHWAYS (SHOULDERS LESS THAN 4')



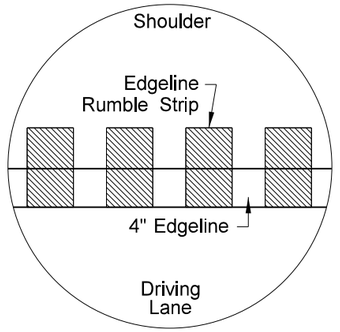
Undivided Highways (12' Driving Lanes & Shoulders 2' to < 4')



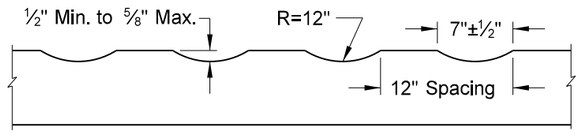
Undivided Highways (12' Driving Lanes or less & Shoulders Less than 2')



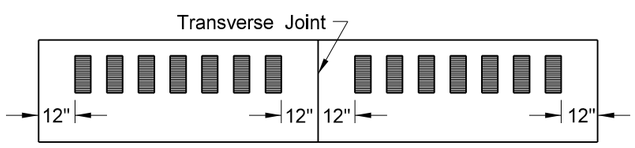
Inset A - Centerline Rumble Strip



Inset B - Edgeline Rumble Strip



Profile of Rumble Strips - Bituminous and PCC Pavements

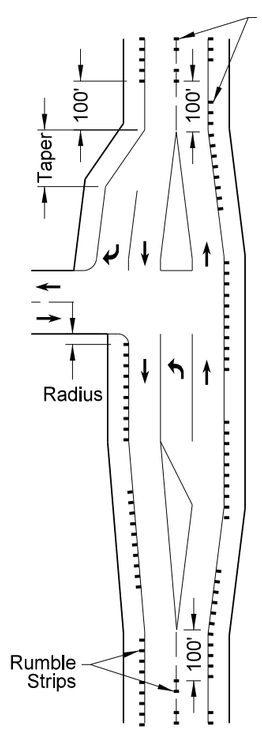


Discontinue rumble strip approx. 12" on both sides of PCC transverse joint

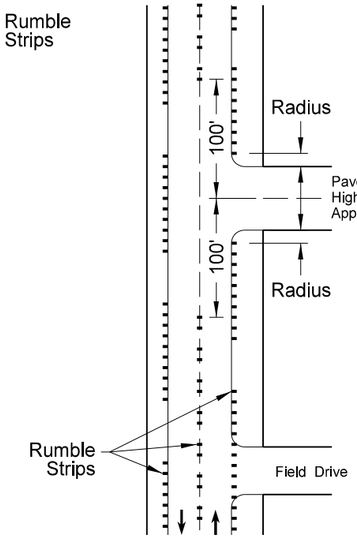
NOTES:

1) Discontinue edgeline rumble strips through the entire length of right turn lanes, 100' before right turn lane tapers, and at the radius of a paved or gravel highway, section line, approach, or private drive.

2) Discontinue centerline rumble strips through the entire length of left turn lanes, 100' before left turn lane tapers and median islands, 100' before and after a paved or gravel highway, section line, approach, or private drive.



Turn Lane
(Right & Left)



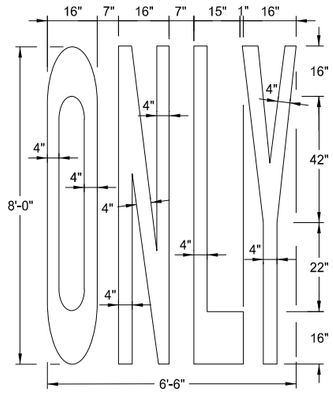
Entrance Roadways

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-29-09	
REVISIONS	
DATE	CHANGE
2-25-10	Note 4 was added.
4-19-10	Revised Note 5, Note 6, and Turn Lane (Right & Left).
9-08-11	Revised Notes and D-760-4.
1-26-12	Revised details for rumble strip widths and dimensions.
10-25-19	Added missing dimensions.

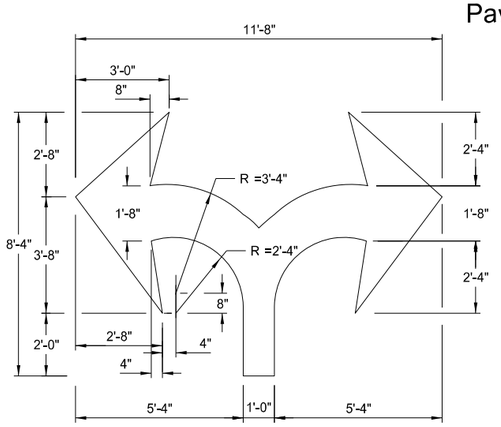
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683 , on 10/25/19 and the original document is stored at the North Dakota Department of Transportation

Pavement Marking Message Details

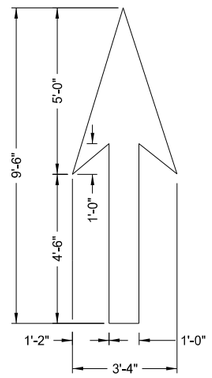
D-762-1



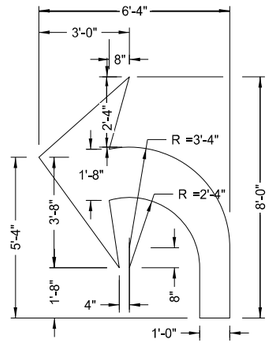
22 S. F.



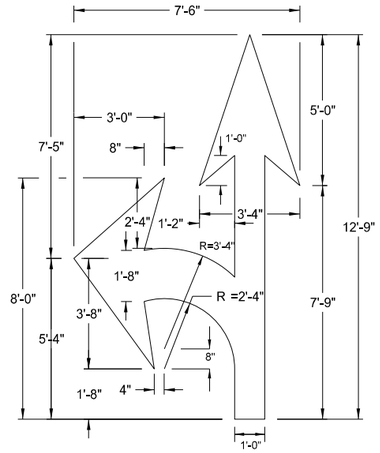
29 S. F.



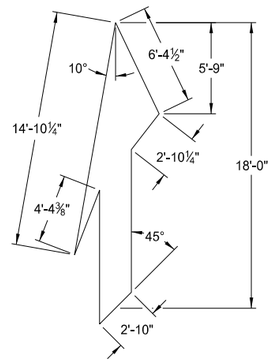
12 S. F.



16 S. F.

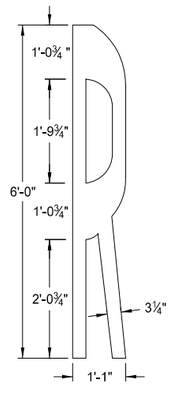


27 S. F.

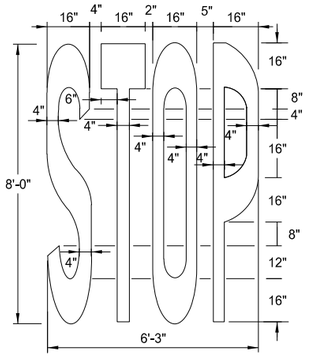


41 S. F.

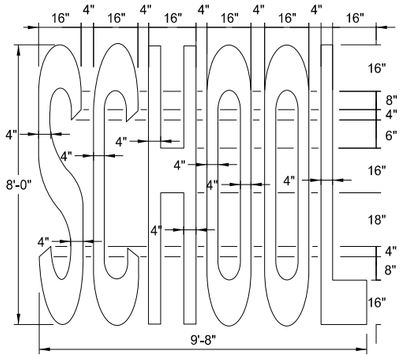
Note: Rotate merge arrow 20° from edge of roadway.



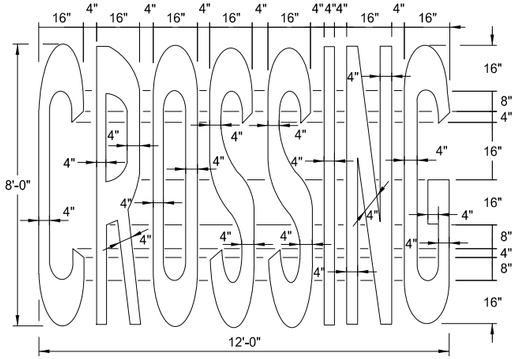
4 S. F.



22 S. F.



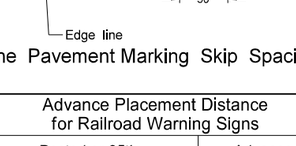
34.5 S. F.



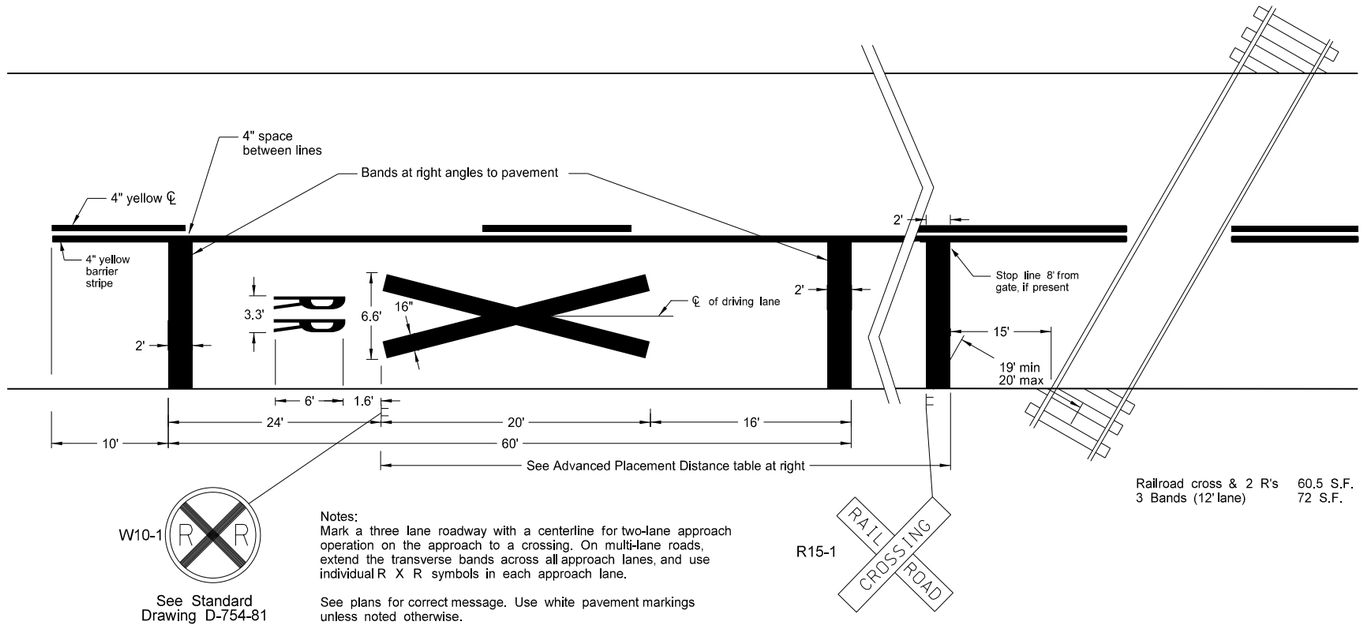
46 S. F.

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



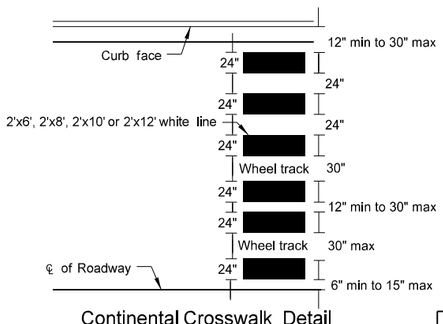
Centerline Pavement Marking Skip Spacing Detail



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

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.



Continental Crosswalk Detail

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

12-6-11

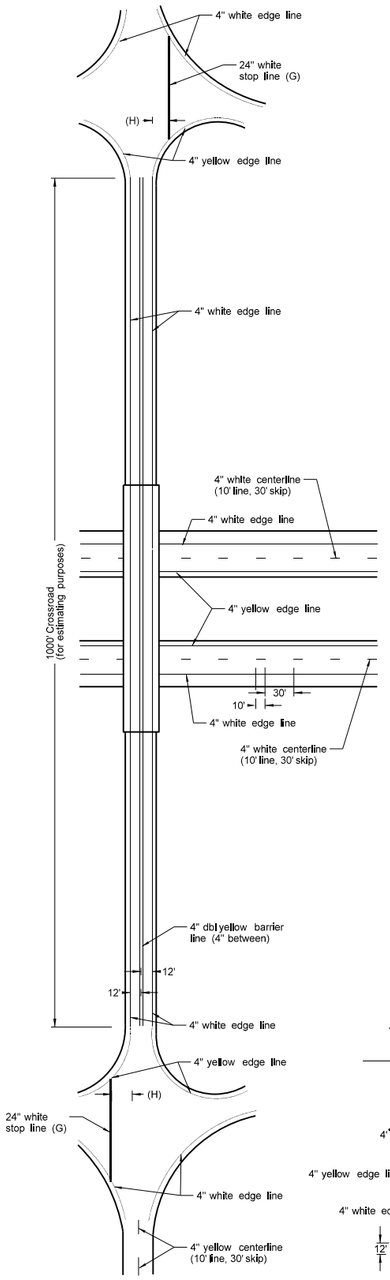
REVISIONS

DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/27/19 and the original document is stored at the North Dakota Department of Transportation

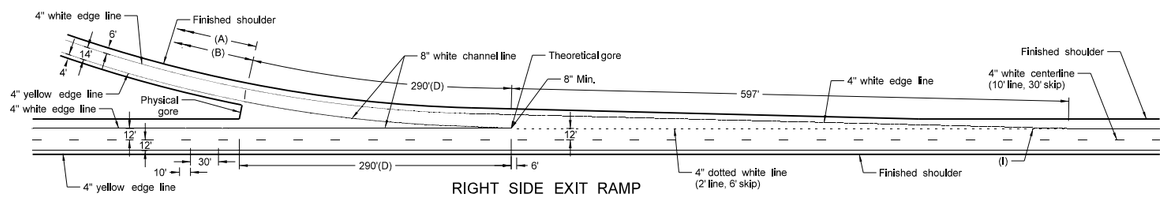
INTERSTATE PAVEMENT MARKING
4 LANE DIVIDED HIGHWAY

D-762-2



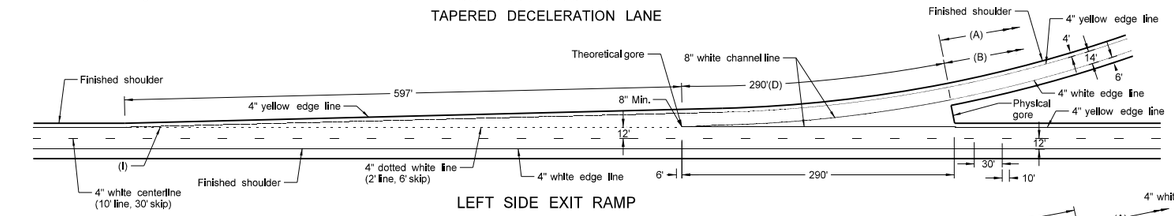
CROSS-ROAD & STRUCTURE

Engineer will determine length striped.



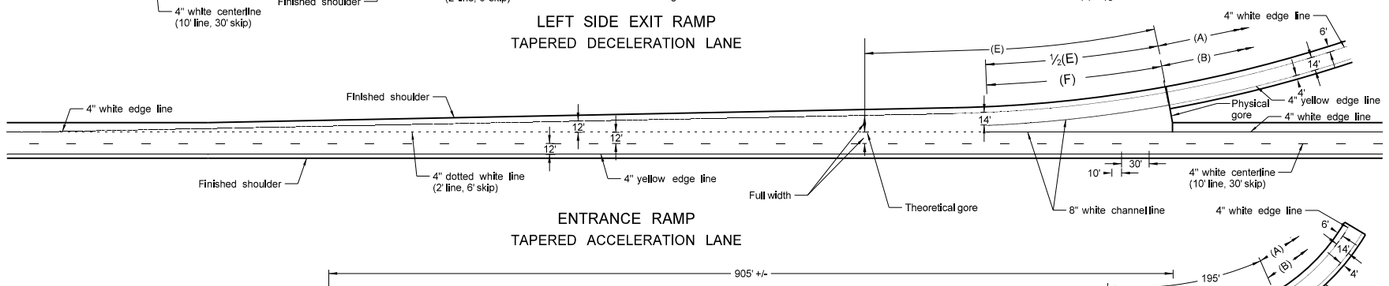
RIGHT SIDE EXIT RAMP

TAPERED DECELERATION LANE



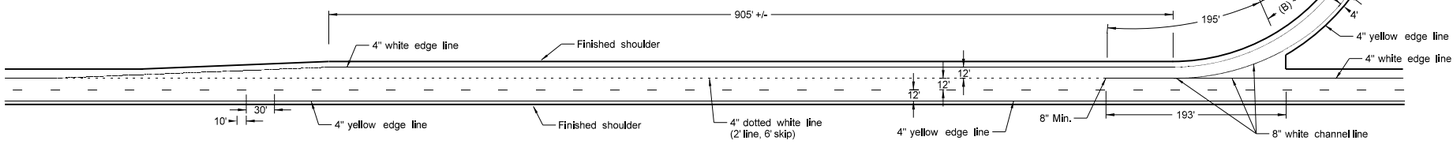
LEFT SIDE EXIT RAMP

TAPERED DECELERATION LANE



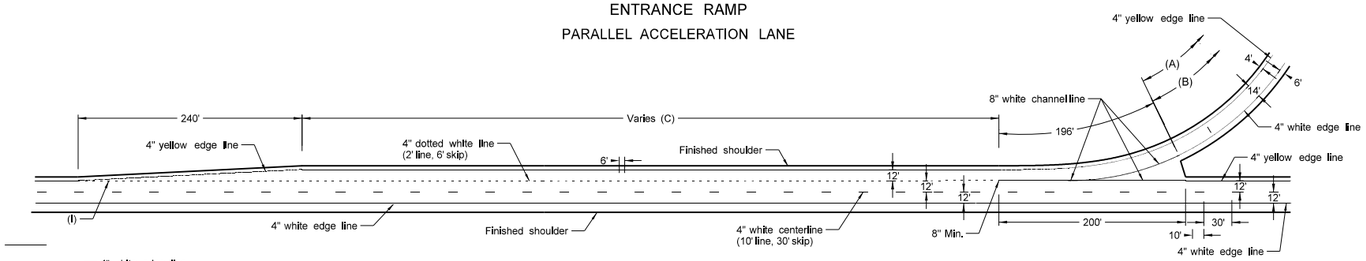
ENTRANCE RAMP

TAPERED ACCELERATION LANE



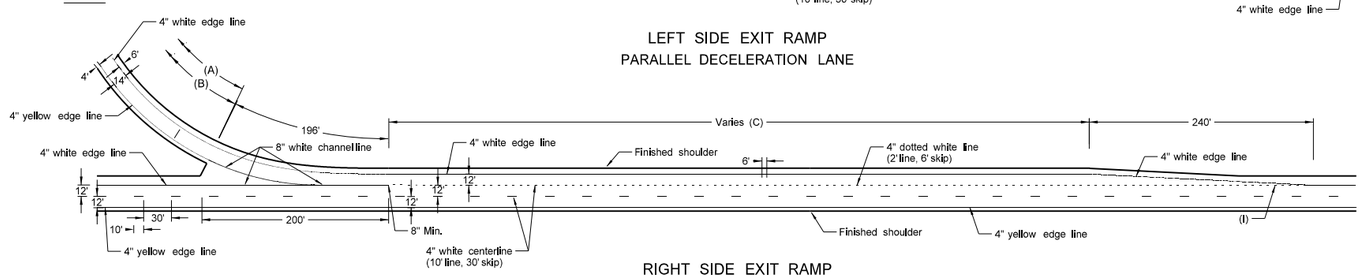
ENTRANCE RAMP

PARALLEL ACCELERATION LANE



LEFT SIDE EXIT RAMP

PARALLEL DECELERATION LANE



RIGHT SIDE EXIT RAMP

PARALLEL DECELERATION LANE

NOTE:

(A) 4" White edge line
(B) 4" Yellow edge line
(C) Assume "varies" equals 790' for purpose of estimate. Place pavement marking from beginning of taper to the 8" line.
(D) Beginning of physical gore to theoretical gore.
(E) If the distace is less than 350' extend the 8" 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.

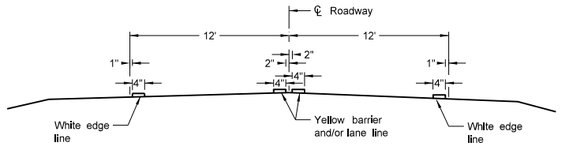
BASIS OF ESTIMATE		
LOCATION	ITEM	
Right or Left Side Exit Ramp TAPERED	8" White channel line	580 LF
	24" White stop line	60 LF
	4" White dotted line	148 LF
	4" White edge line	1115 LF
	4" Yellow edge line	1075 LF
Entrance Ramp TAPERED	8" White channel line	390 LF
	4" White dotted line	258 LF
	4" White edge line	1270 LF
	4" Yellow edge line	1075 LF
Right or Left Side Exit Ramp PARALLEL	8" White channel line	396 LF
	24" White stop line	60 LF
	4" White dotted line (C)	258 LF
	4" White edge line	1115 LF
	4" Yellow edge line	1075 LF
Entrance Ramp PARALLEL	8" White channel line	388 LF
	4" White dotted line	283 LF
	4" White edge line	1275 LF
	4" Yellow edge line	1075 LF
Main Line (Both Roadways)	4" White lane line, 10' line, 30' skip	2640 LF/MI
	4" White edge line	10,560 LF/MI
	4" Yellow edge line	10,560 LF/MI
Cross Road	4" White edge line	2000 LF
	4" 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).

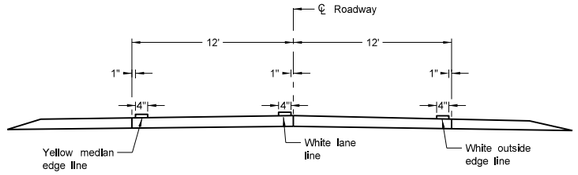
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 10/25/19 and the original document is stored at the North Dakota Department of Transportation

PAVEMENT MARKING

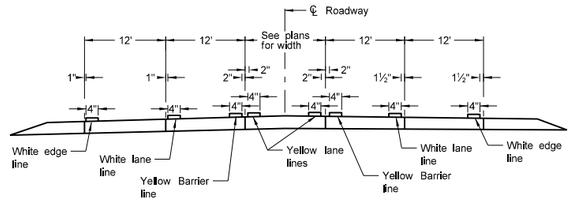
D-762-4



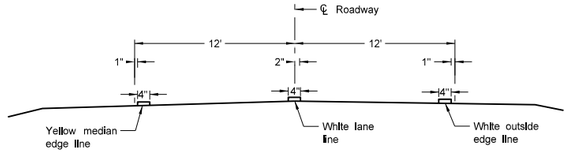
Two Lane Two Way
RURAL ROADWAY



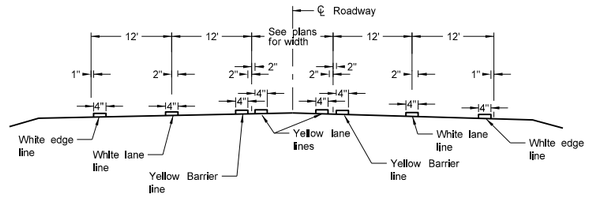
Two Lane Roadway
INTERSTATE HIGHWAY
Concrete Section



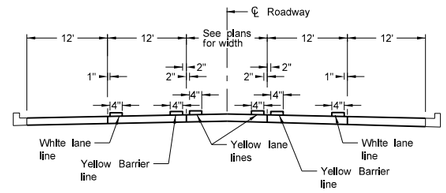
RURAL FIVE LANE ROADWAY
Concrete Section



Two Lane Divided
Rural Roadway
PRIMARY HIGHWAY
Asphalt Section



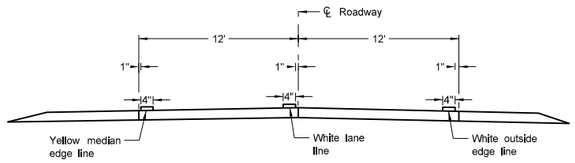
RURAL FIVE LANE ROADWAY
Asphalt Section



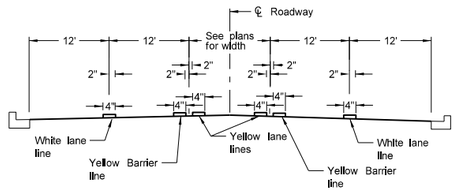
URBAN FIVE LANE SECTION
Concrete Section

NOTES:

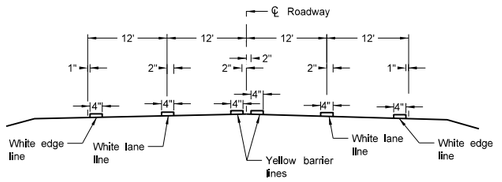
1. Continue edge lines through private drives and field drives. Break edge lines for intersections.



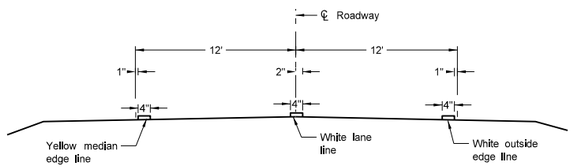
Two Lane Roadway
PRIMARY HIGHWAY
Concrete Section



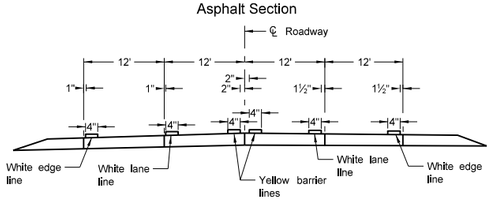
URBAN FIVE LANE SECTION
Asphalt Section



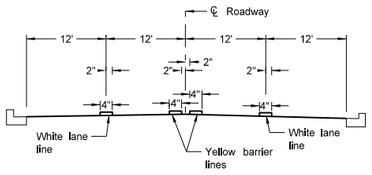
RURAL FOUR LANE ROADWAY
Asphalt Section



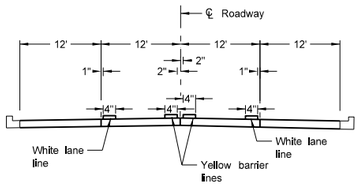
Two Lane Roadway
INTERSTATE HIGHWAY
Asphalt Section



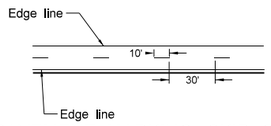
RURAL FOUR LANE ROADWAY
Concrete Section



URBAN FOUR LANE SECTION
Asphalt Section



URBAN FOUR LANE SECTION
Concrete Section



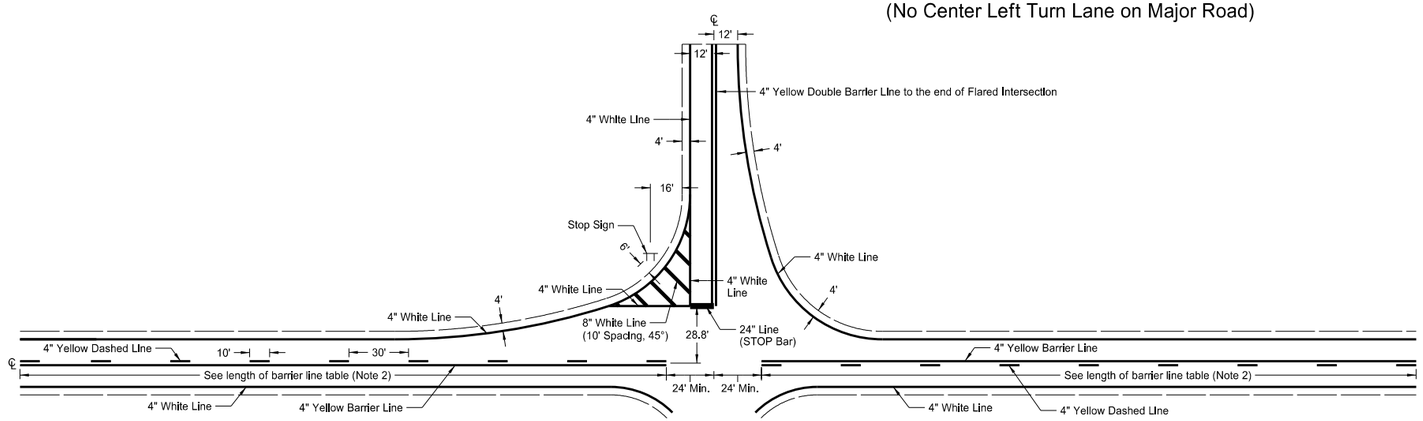
CENTERLINE PAVEMENT MARKING SKIP SPACING DETAIL

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
10-17-17 08-27-19	Updated to active voice. New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/27/19 and the original document is stored at the North Dakota Department of Transportation

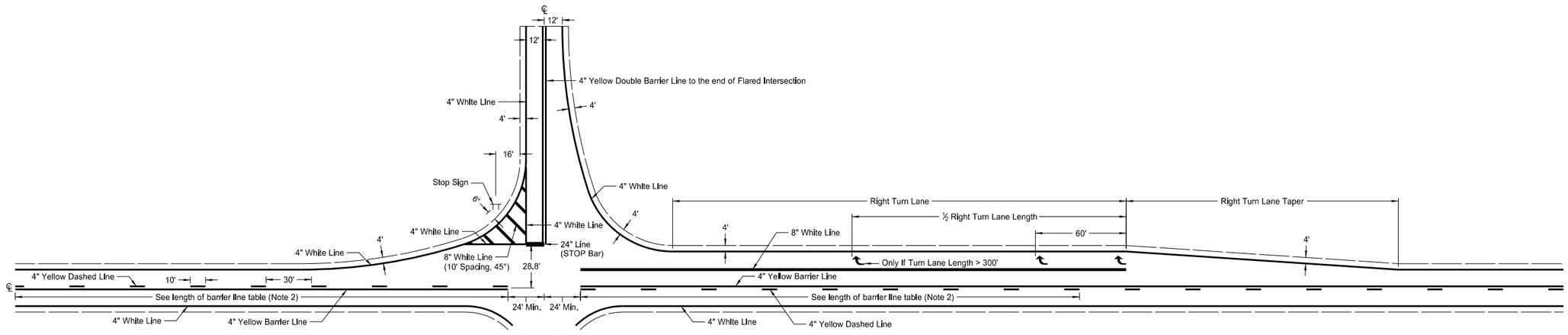
PAVEMENT MARKING FOR STANDARD 90 DEGREE FLARED INTERSECTION

(No Center Left Turn Lane on Major Road)



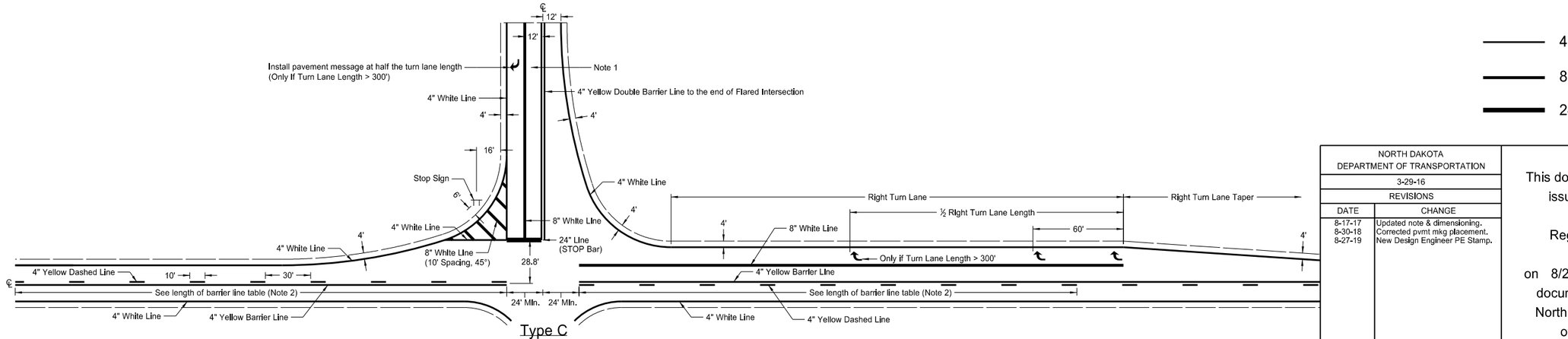
Type A

(No turn lanes present)



Type B

(Right Turn Lane on Major Road)



Type C

(Right Turn Lane on Major Road, and Turn Lane on Minor Road)

Notes

1. At "T" intersections (3-leg), additionally install left turn pavement marking message arrow.
2. The barrier lines have variable distances dependent on speed limit. Obtain barrier line length from table below (stopping sight distance.)

Table for Length of Barrier Line									
Speed Limit (mph)	30	35	40	45	50	55	60	65	70
Minimum Length	200'	250'	305'	360'	425'	495'	570'	645'	730'

4" Marking

8" Marking

24" Marking

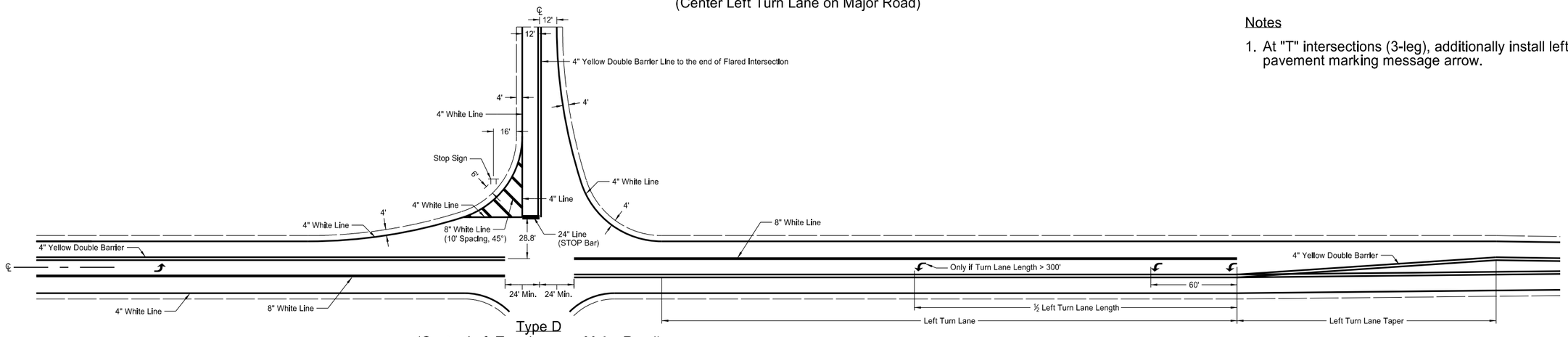
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
3-29-16	
REVISIONS	
DATE	CHANGE
8-17-17 8-30-18 8-27-19	Updated note & dimensioning. Corrected pvmt mkg placement. New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/27/19 and the original document is stored at the North Dakota Department of Transportation

PAVEMENT MARKING FOR STANDARD 90 DEGREE FLARED INTERSECTION

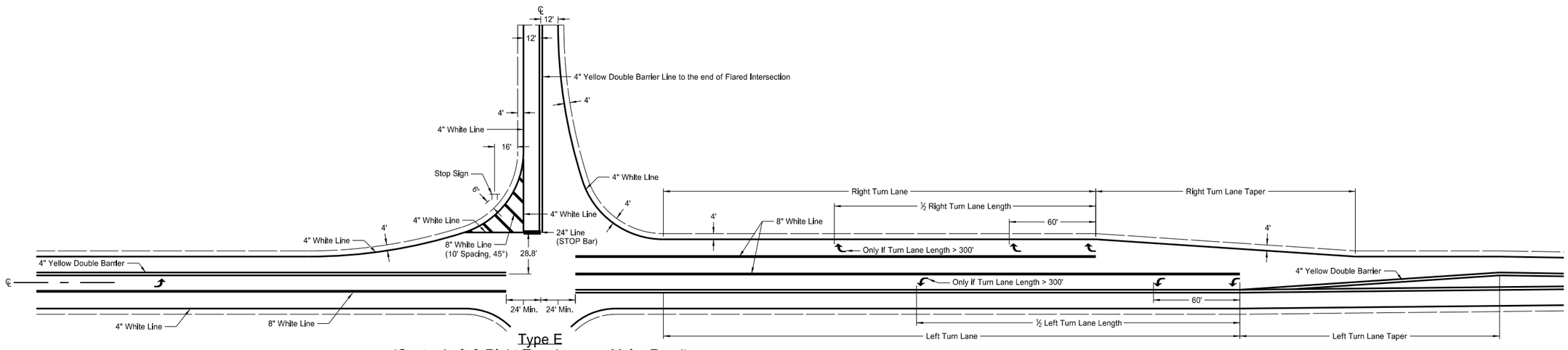
D-762-6

(Center Left Turn Lane on Major Road)



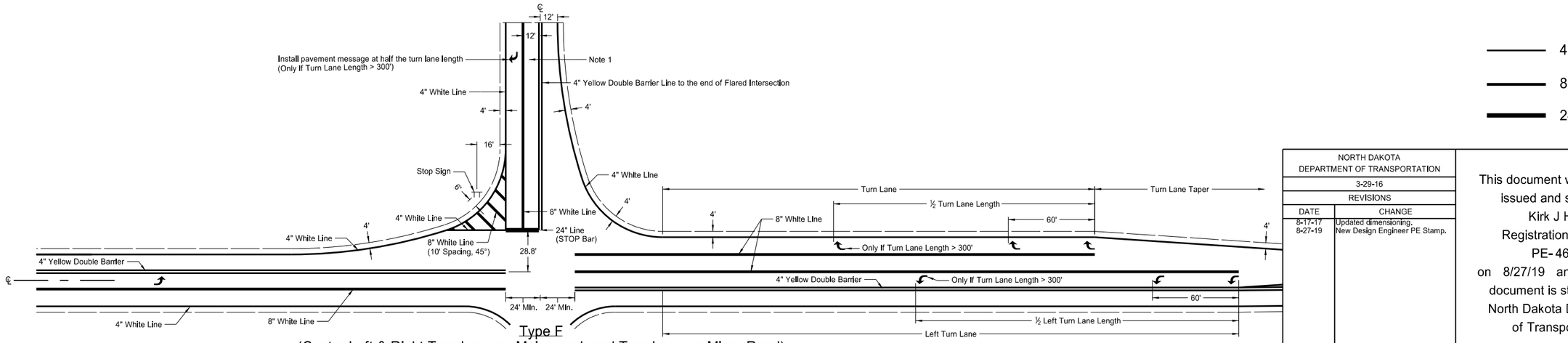
Type D

(Center Left Turn Lane on Major Road)



Type E

(Center Left & Right Turn Lane on Major Road)



Type F

(Center Left & Right Turn Lane on Major road, and Turn Lane on Minor Road)

Notes

1. At "T" intersections (3-leg), additionally install left turn pavement marking message arrow.

4" Marking

8" Marking

24" Marking

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
3-29-16	
REVISIONS	
DATE	CHANGE
8-17-17	Updated dimensioning.
8-27-19	New Design Engineer PE Stamp.

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