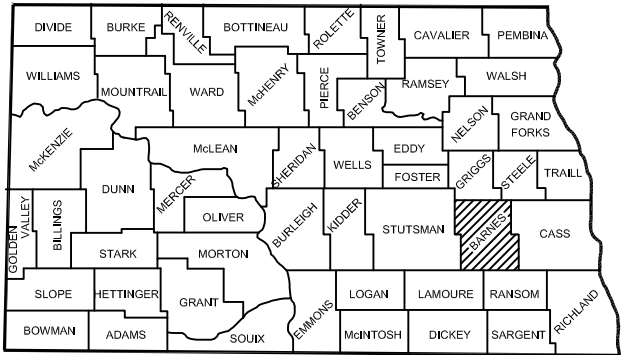


JOB #23

	STATE	PROJECT NUMBER	PCN	SECTION NUMBER	SHEET NUMBER
	ND	SU-2-990(056)060	21847	1	1



STATE OF NORTH DAKOTA
SHOWING COUNTIES

CITY OF VALLEY CITY, NORTH DAKOTA
PLANS FOR FEDERAL AID PROJECT
NUMBER SU-2-990(056)060
MILL & OVERLAY AND INCIDENTALS
7TH ST SE - 5TH AVE SE TO 12TH AVE SE, VALLEY CITY, ND
Project consists of approximately 0.486 miles of Milling and Hot Mix Asphalt Overlay.

GOVERNING SPECIFICATIONS:
2014 Standard Specifications adopted by the North Dakota
Department of Transportation and the Supplemental Specifications
effective on the date the project is advertised.

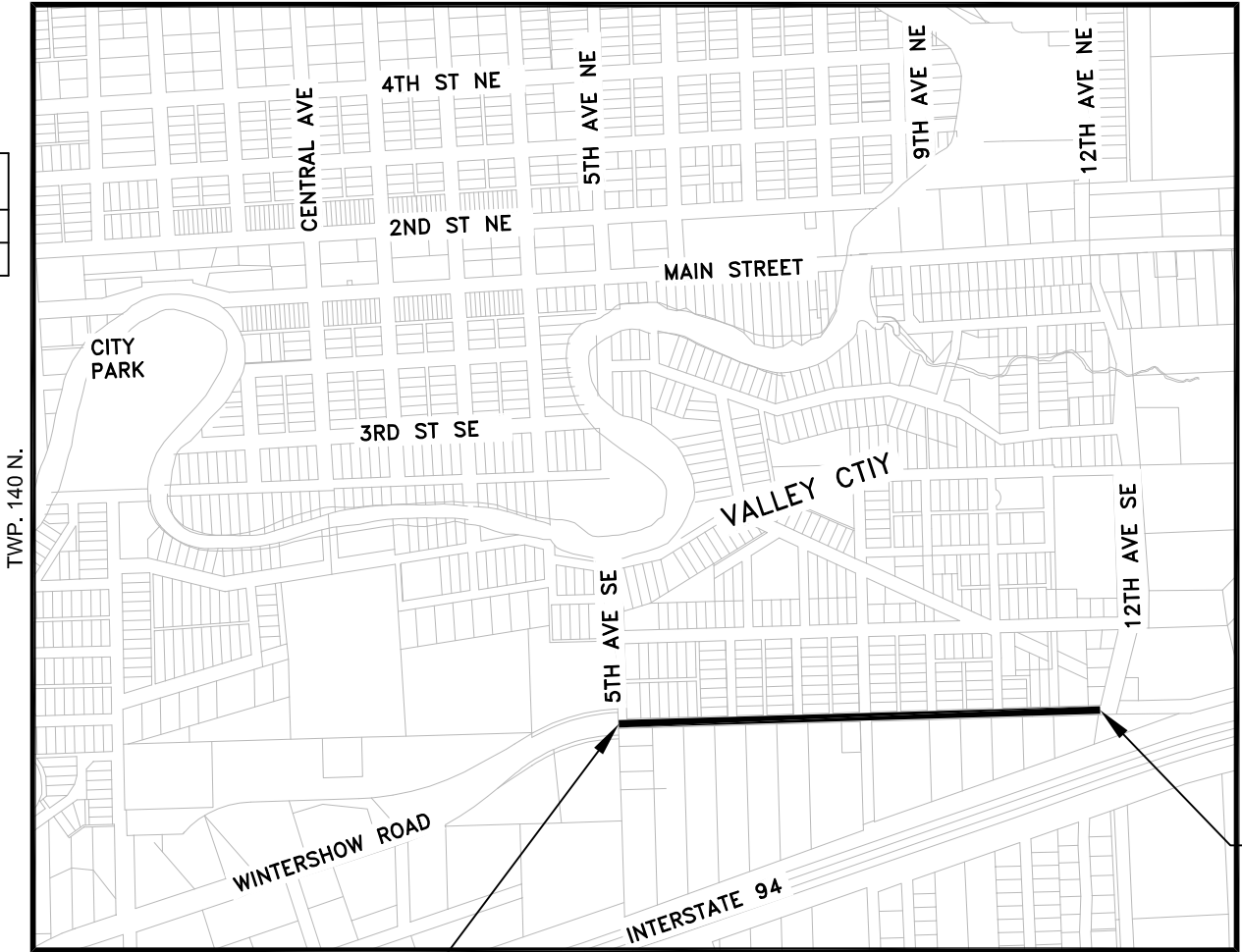
PROJECT LENGTH

PROJECT	GROSS MILES	NET MILES
SU-2-990(056)060	0.486	0.486
TOTAL	0.486	0.486

DESIGN DATA

TRAFFIC		AVERAGE DAILY			EST. 30th MAX. HR.
		PASSENGER	TRUCKS	TOTAL	
CURRENT TRAFFIC	2017	1,575	50	1,625	165
TRAFFIC FORECAST	2037	1,740	55	1,795	180

DESIGN SPEED 25 MPH
MINIMUM SIGHT DISTANCE (STOPPING) 155 FEET



BEGIN PROJECT
SU-2-990(056)060
STA. 50+22.45

END PROJECT
SU-2-990(056)060
STA. 75+87.06

PS&E Corrections Made August 2017
Surveyed & Designed Date February/July 2017

DESIGNER	Jacob Loegering
DESIGNER	Michael Strom
DESIGNER	-
DESIGNER	-
DESIGNER	-

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CHAD A. PETERSEN
REGISTRATION NUMBER
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VALLEY CITY, ND.

CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY
ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A
DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE
LAWS OF THE STATE OF NORTH DAKOTA.

CHAD A. PETERSEN /s/
KADRMAS, LEE & JACKSON, INC.

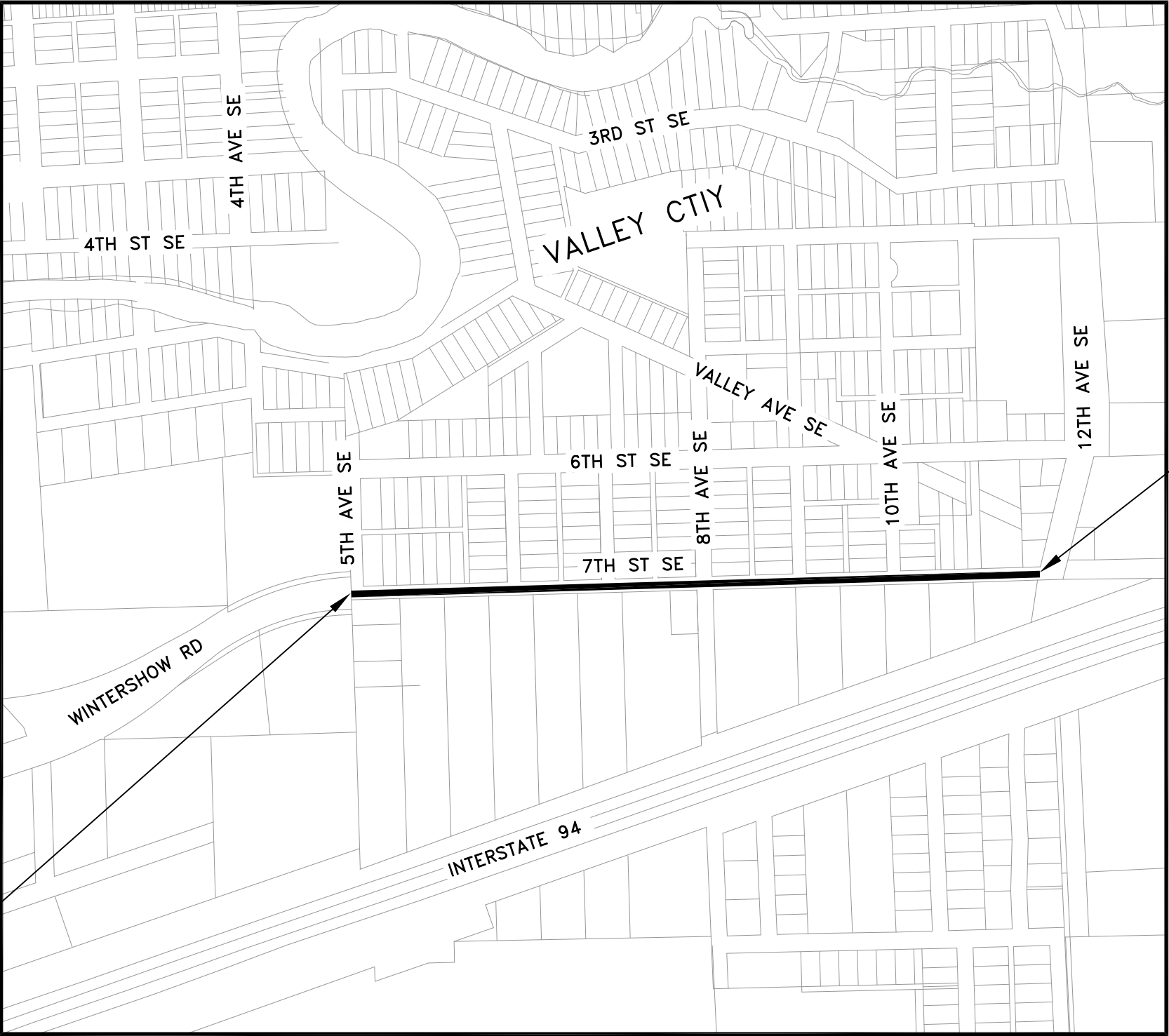
DATE 08/23/17 REGISTRATION NUMBER PE- 4884



1010 4TH AVENUE SW
P.O. BOX 937
VALLEY CITY, ND 58072-0937
(701) 845-4980, FAX (855) 288-8055
© KLJ 2017

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						ND	SU-2-990(056)060	2	1
PLAN SECTIONS					LIST OF STANDARD DRAWINGS				
Section	Page(s)	Description	Number	Description					
1	1	Title Sheet	D-101-1	NDDOT Abbreviations					
2	1	Table of Contents	D-101-2	NDDOT Abbreviations					
4	1	Scope of Work	D-101-3	NDDOT Abbreviations					
6	1	Notes	D-101-10	NDDOT Utility Company and Organization Abbreviations					
8	1	Quantities & Basis of Estimate	D-101-20	Line Styles					
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			D-762-4	Pavement Marking					

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	4	1



Mill and Overlay

BEGIN PROJECT
SU-2-990(056)060
STA 50+22.45

END PROJECT
SU-2-990(056)060
STA. 75+87.06


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SU-2-990(056)060
CITY OF VALLEY CITY, NORTH DAKOTA



SCOPE OF WORK

DRWN. BY JM	CHKD BY JL	PROJECT NO. 5417100
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		STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	SU-2-990(056)060	6	1
100-P01	NOISE RESTRICTION: Limit all work to the hours of 7 a.m. to 11 p.m.				
202-P01	REMOVAL OF CURB & GUTTER: If Contractor operations require the removal of existing pavement and aggregate base adjacent to curb and gutter removals, the maximum width of each removal area will not exceed 2 feet. Include this work in the price bid for “REMOVAL OF CURB & GUTTER”.				
203-P01	SUBGRADE REPAIR: Known patching locations have been shown in the plans. The Engineer will determine any additional locations and actual quantity of for “COMMON EXCAVATION-SUBCUT”, “AGGREGATE BASE COURSE CL 5” and “GEOSYNTHETIC MATERIAL TYPE R1” (see Subgrade Repair Detail on Sheet 1 Section 20). A quantity of 525 CY of “COMMON EXCAVATION-SUBCUT has been setup in the plans to use for patching.				
216-P01	WATER: Include water for compaction and dust control in other bid items.				
411-P01	MILLING PAVEMENT SURFACE: Remove the existing bituminous material to form a straight vertical edge to allow the placement of the full depth surfacing at the beginning and end of milling sections including intersections. Include any special milling around manholes and gate valves in the price bid for milling pavement surface. All milled material will become the property of the City and must be stockpiled at the Old Mill Dam site located at the southeast corner of 4 th Avenue and 4 th Street SE. Contact the Valley City Public Works at (701) 845-4255 prior to hauling the material to the designated site. Thoroughly sweep the milled areas immediately following the milling operation. If dust becomes a problem, apply dust palliative measures to control the dust. Milling depths may vary. The Engineer will inspect all milled areas to determine if subgrade repairs need to be completed. If subgrade repairs are required, repair the designated areas according to the Subgrade Repair Detail on Sheet 1 Section 20.				
411-P02	TEMPORARY ASPHALT WEDGES: Place temporary asphalt or milled material wedges at the ends of the project and intersection locations to allow for the smooth passage of vehicles. Include all costs for labor, materials and equipment to install and remove the wedges in the unit price bid for “MILLING PAVEMENT SURFACE”.				
430-P01	SUPERPAVE FAA 43: Patch pavement surface areas showing signs of failure as per the Subgrade Repair Detail (see Sheet 1 Section 20). Clean, tack and fill existing irregularities in the roadway with hot mix asphalt and compact in a separate operation. All hot mix asphalt required for patching will be measured and paid for by the ton of “SUPERPAVE FAA 43”. This will be considered full payment for performing this work. Known patching locations have been shown in the plans. The Engineer will determine any additional locations and actual quantity of “SUPERPAVE FAA 43” used for patching.				
430-P02	COMPACTION: Ordinary compaction, as specified in Section 430.04 I.3, will be utilized.				
704-P01	TRAFFIC CONTROL DEVICES: The Contractor shall furnish the necessary signing as shown on Standard Drawings: D-704-15, 20, 22, 25 and 26 under Type A, G, K, N, V W, X, EE, and GG as required by construction operations.				
722-P01	UTILITY ADJUSTMENTS: Adjust the Manholes and Gate Valve Boxes to the proposed finished grades. Manhole and Gate Valve adjustments must be made by methods approved by the City of Valley City. Include all work related to the adjustment of Manholes and Gate Valve Box in the price bid for “ADJUST GATE VALVE BOX” and “ADJUST MANHOLE”.				
748-P01	CURB & GUTTER-TYPE I: The Engineer will determine the location and actual quantity of “CURB & GUTTER-TYPE I” used for patching. Concrete fillets that are designated for patching will be paid for by measuring the face of curb and gutter. The concrete depth at the fillets must match the existing depth of the adjacent valley gutter.				
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		<div>SU-2-990(056)060 CITY OF VALLEY CITY, NORTH DAKOTA</div>			
		<div><div></div><div>PLAN NOTES</div></div>			
		DRWN. BY JM	CHKD. BY JL	PROJECT NO. 5417100	

ESTIMATE OF QUANTITIES


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
103	0100	CONTRACT BOND	L SUM	1.0
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	9
202	0130	REMOVAL OF CURB & GUTTER	LF	612
203	0138	COMMON EXCAVATION-SUBCUT	CY	525
302	0120	AGGREGATE BASE COURSE CL 5	TON	737
401	0050	TACK COAT	GAL	618
411	0105	MILLING PAVEMENT SURFACE	SY	10,783
430	0043	SUPERPAVE FAA 43	TON	1,847
430	1000	CORED SAMPLE	EA	7
430	5828	PG 58-28 ASPHALT CEMENT	TON	120
702	0100	MOBILIZATION	L SUM	1.0
704	0100	FLAGGING	MHR	420
704	1000	TRAFFIC CONTROL SIGNS	UNIT	933
704	1052	TYPE III BARRICADE	EA	4
704	1067	TUBULAR MARKERS	EA	52
708	1540	INLET PROTECTION-SPECIAL	EA	10
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	1,575
722	6140	ADJUST GATE VALVE BOX	EA	13
722	6200	ADJUST MANHOLE	EA	9
748	0140	CURB & GUTTER-TYPE I	LF	612
750	1000	DRIVEWAY CONCRETE	SY	163
762	1104	PVMT MK PAINTED 4IN LINE	LF	640

BASIS OF ESTIMATE

MATERIAL
Aggregate Base Course CL 5 @ 1.875 Ton/CY
Tack Coat @ 0.05 Gal/SY
Superpave FAA 43 @ 2.0 Ton/CY
Asphalt Cement PG 58-28 @ 6.5% of Superpave FAA 43
Cored Sample @ 1 Core/Block

SU-2-990(056)060
CITY OF VALLEY CITY, NORTH DAKOTA



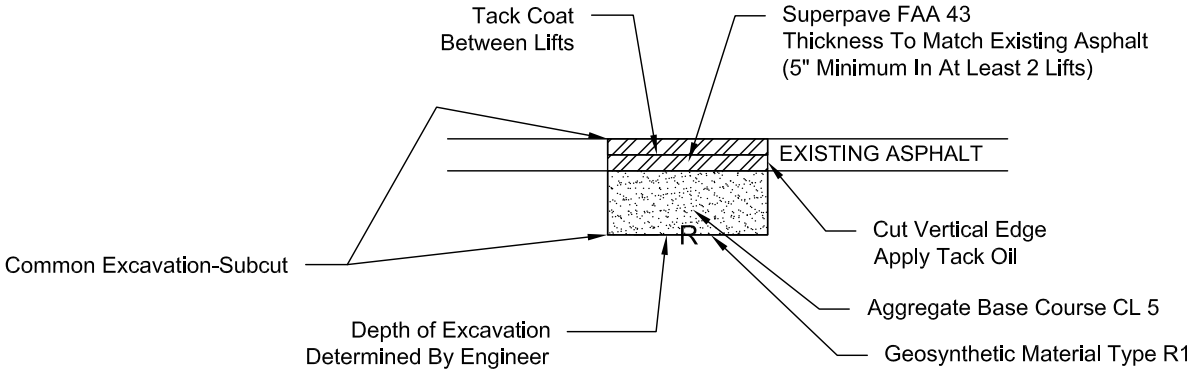
ESTIMATE OF QUANTITIES
& BASIS OF ESTIMATE

DRWN. BY
JM

CHKD BY
JL

PROJECT NO.
5417100

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	20	1



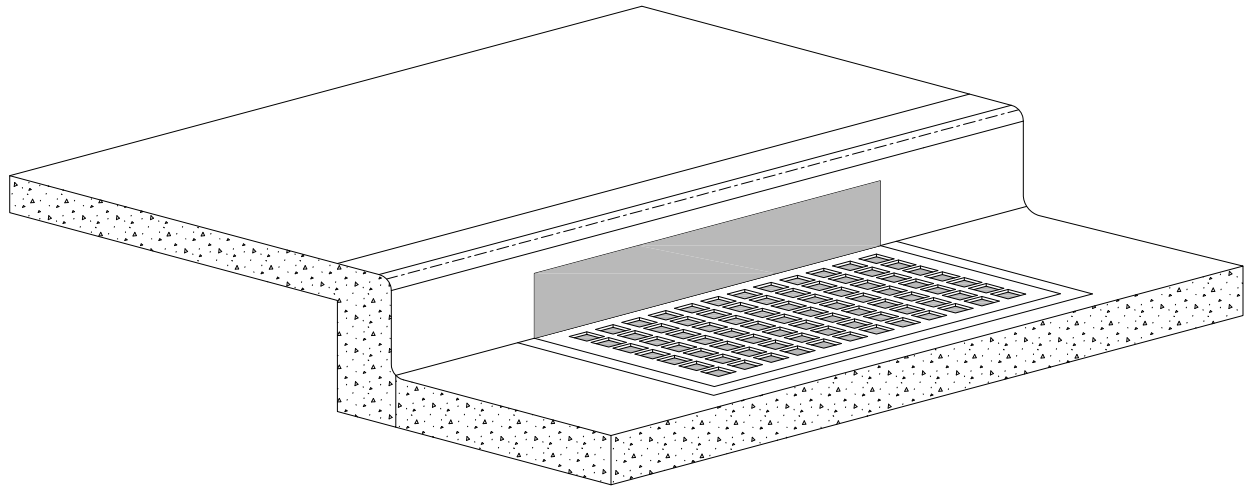
SUBGRADE REPAIR

- Notes:
1. Geosynthetic Material Type R1 may be eliminated in the field by the Engineer.

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SU-2-990(056)060 CITY OF VALLEY CITY, NORTH DAKOTA		
	GENERAL DETAILS	
	DRWN. BY JM	CHKD BY JL
		PROJECT NO. 5417100

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	20	2



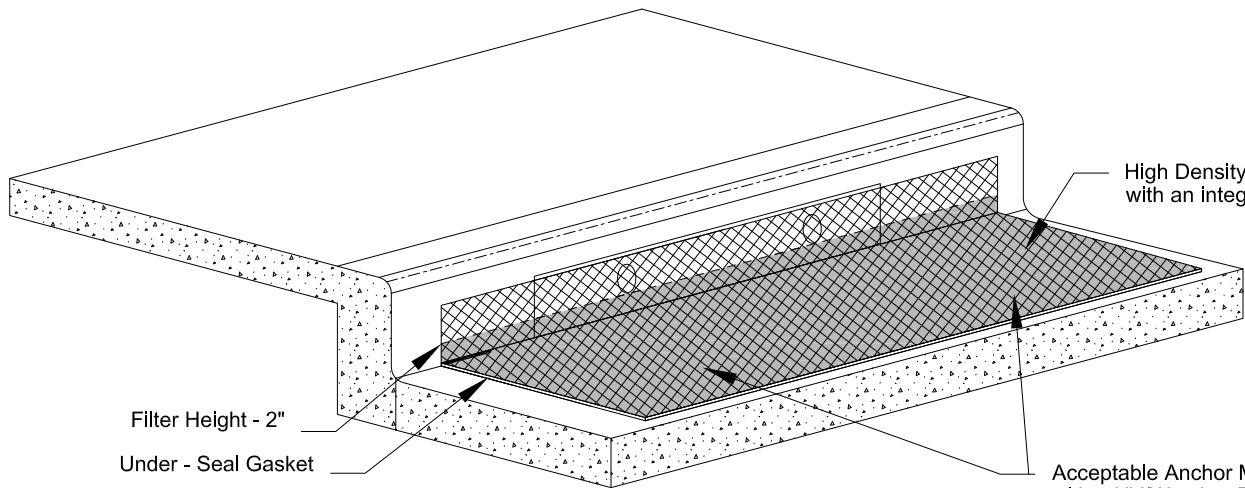
Inlet Protection Special

Installation Notes:

1. Place device tightly against drain opening and cover entire grate. The device should extend at least 2 inches past grate toward street.
2. Overlap the segments at longer openings.
3. Anchor the device so that water cannot flow behind it.

General Notes:

1. Remove material that falls into the inlet during maintenance or removal of the device.
2. Inlet bags can be used.



Acceptable Anchor Method: Fasten to inlet casting grate with a UV/Weather Resistant Plastic Cable Zip Ties - 16 to 24 in. Install zip ties at each corner of the inlet near the perimeter and two additional zip ties near the middle of the casting. Punch hole through filter and run cable tie downward around grate and back up to fasten.

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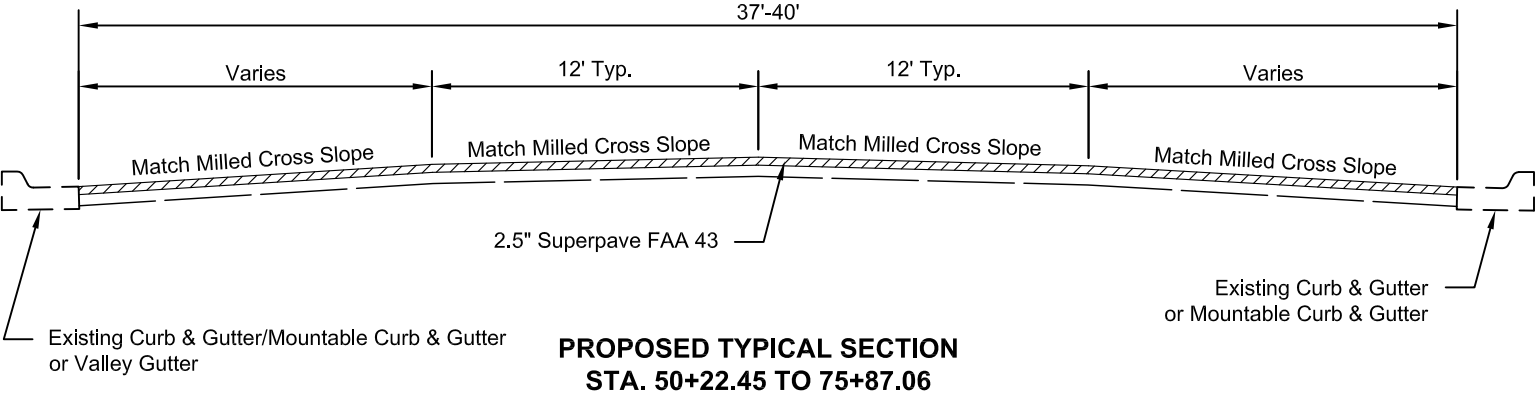
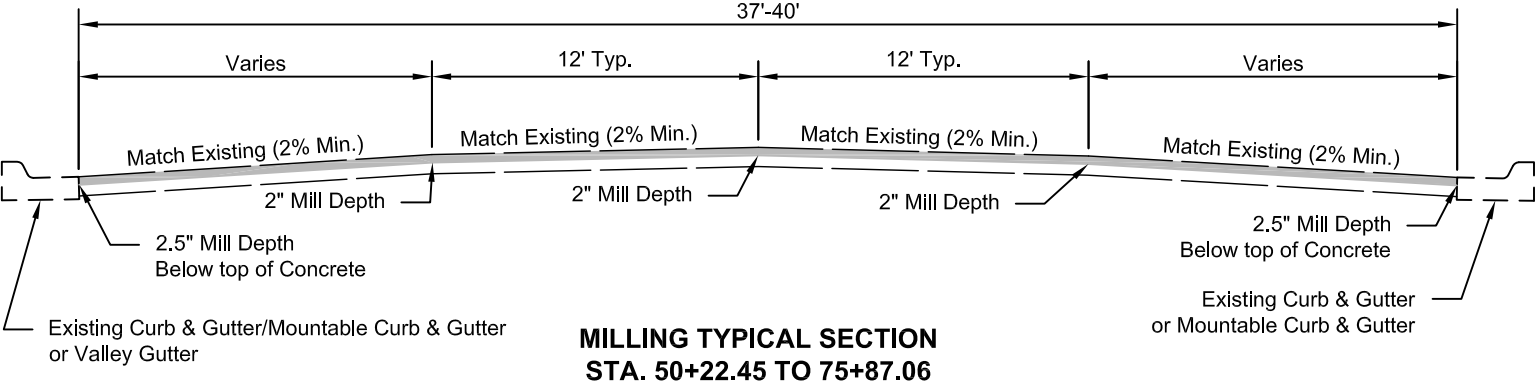
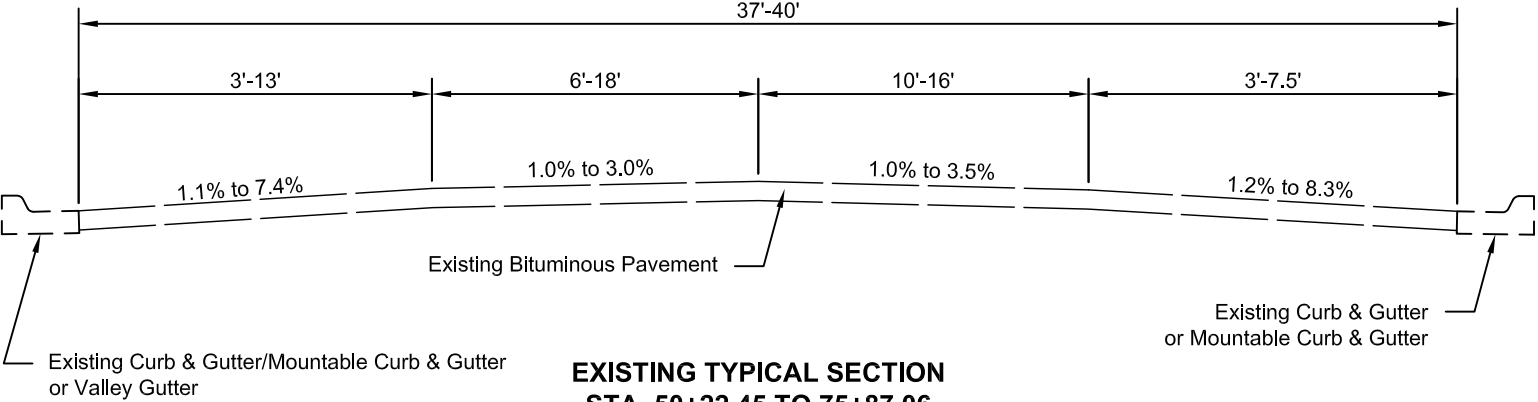
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CITY OF VALLEY CITY, NORTH DAKOTA



**INLET PROTECTION
DEVICE DETAILS**


DRWN. BY JM	CHKD BY JL	PROJECT NO. 5417100
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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CITY OF VALLEY CITY, NORTH DAKOTA



TYPICAL SECTIONS

DRWN. BY
JM

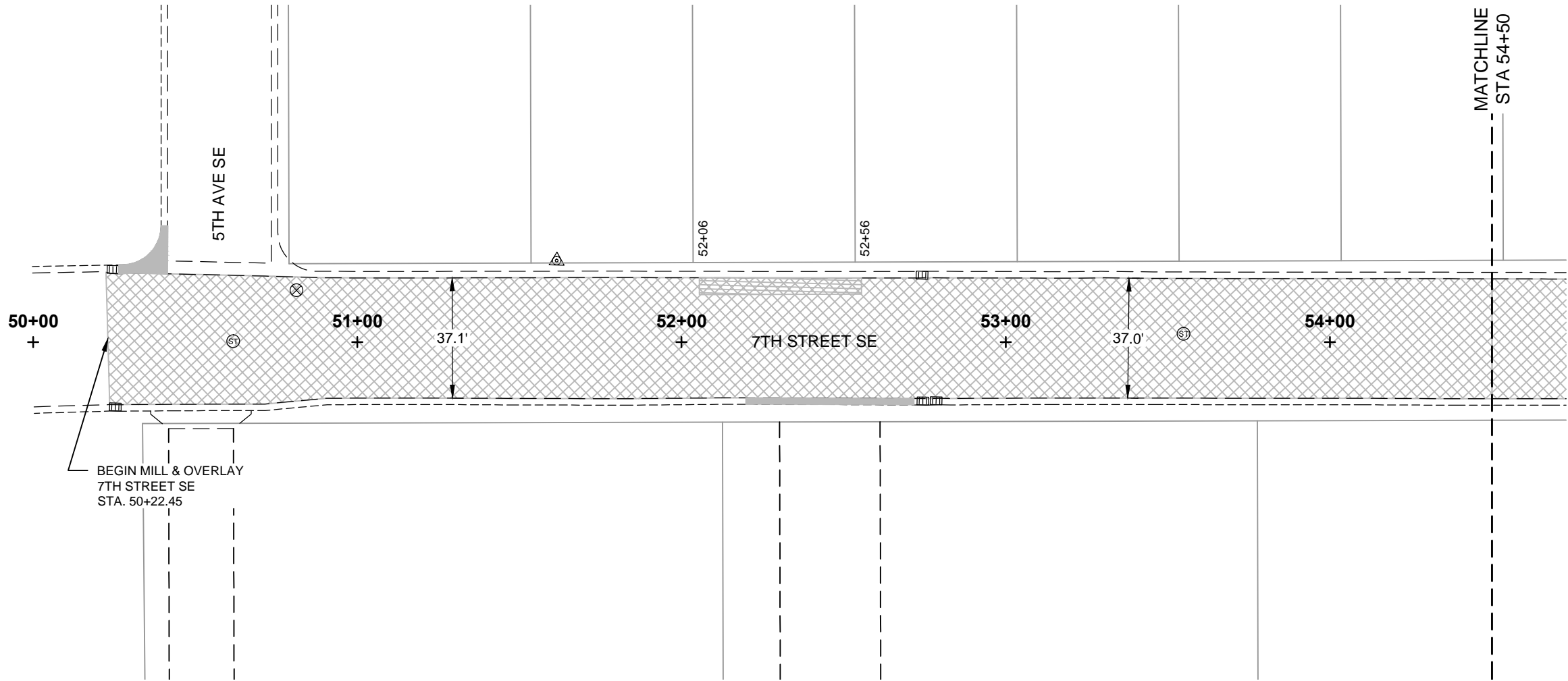
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PROJECT NO.
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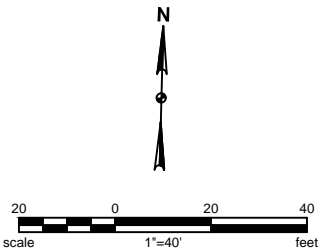
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	40	1

REMOVAL OF CURB & GUTTER	
STA. 50+26 TO 50+41 LT	23 LF
STA. 52+20 TO 52+72 RT	52 LF
	75 LF

MILLING PAVEMENT SURFACE	
STA. 50+22.45 TO 54+50	1,779 SY



- MILLED PAVEMENT SURFACE
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CURB & GUTTER
- PATCH LOCATION (QUANTITIES ARE INCLUDED IN THE ESTIMATE OF QUANTITIES)



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CITY OF VALLEY CITY, NORTH DAKOTA

REMOVALS
STA. 50+22.45 TO 54+50

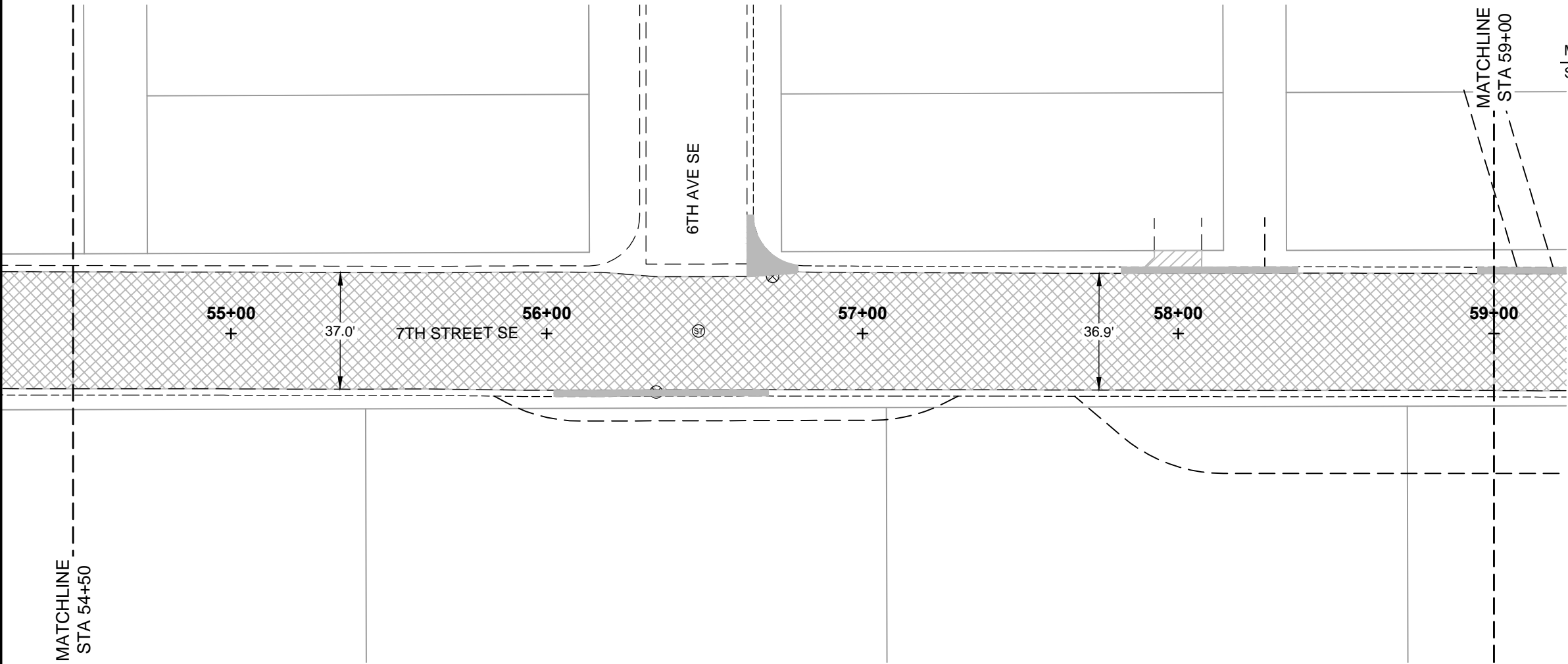
DRWN. BY ZV	CHKD BY CP	PROJECT NO. 5417100
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	40	2

REMOVAL OF CONCRETE PAVEMENT	
STA. 57+89 TO 58+08 LT	9 SY

REMOVAL OF CURB & GUTTER	
STA. 56+02 TO 56+70 RT	68 LF
STA. 56+64 TO 56+80 LT	28 LF
STA. 57+82 TO 58+38 LT	56 LF
STA. 58+95 TO 59+00 LT	5 LF
	157 LF

MILLING PAVEMENT SURFACE	
STA. 54+50 TO 59+00	1,846 SY



- MILLED PAVEMENT SURFACE
- REMOVAL OF CONCRETE PAVEMENT
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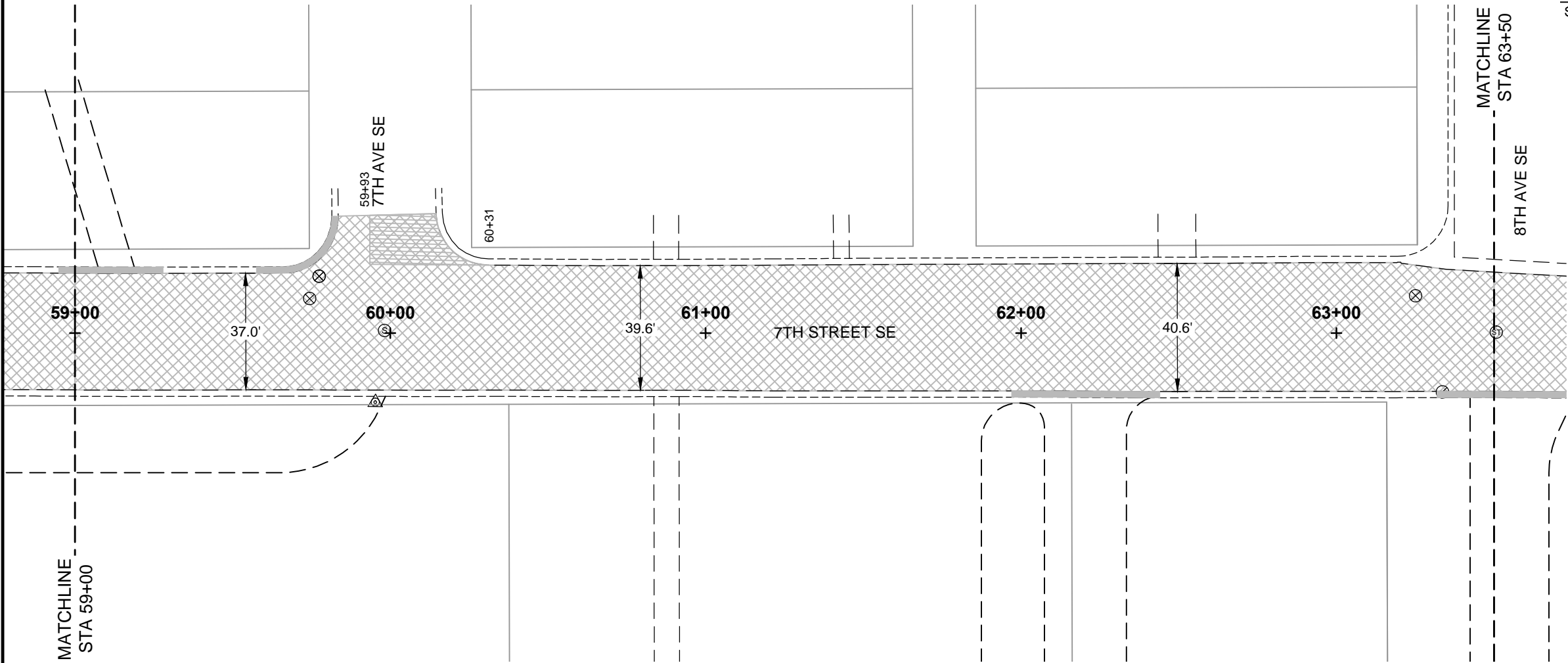
REMOVALS
STA. 54+50 TO 59+00

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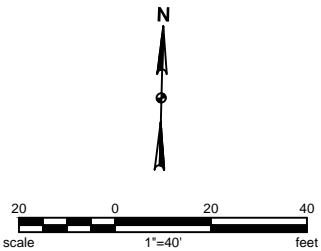
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	40	3

REMOVAL OF CURB & GUTTER	
STA. 59+00 TO 59+28 LT	28 LF
STA. 59+58 TO 59+83 LT	35 LF
STA. 61+97 TO 62+44 RT	47 LF
STA. 63+32 TO 64+00 RT	18 LF
	128 LF

MILLING PAVEMENT SURFACE	
STA. 59+00 TO 63+50	2,041 SY



- MILLED PAVEMENT SURFACE
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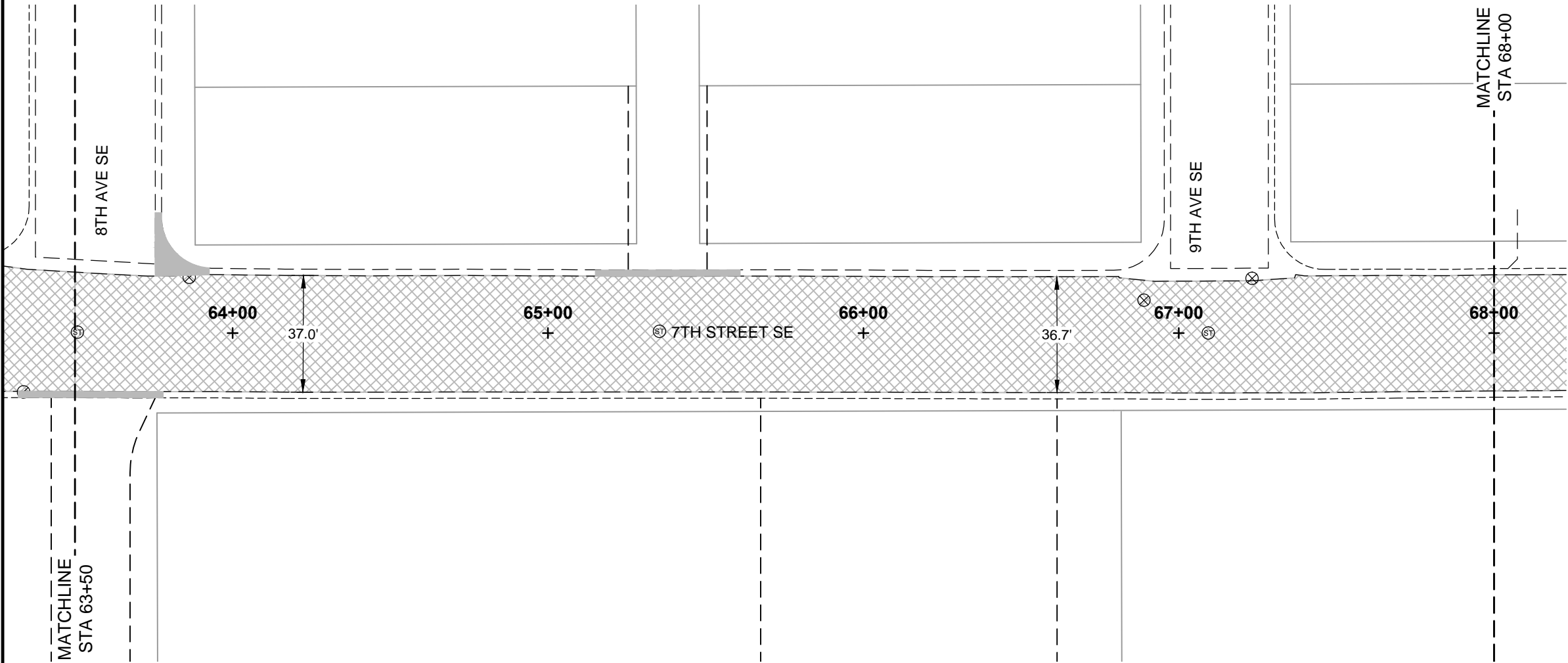
REMOVALS
STA. 59+00 TO 63+50

DRWN. BY ZV	CHKD BY CP	PROJECT NO. 5417100
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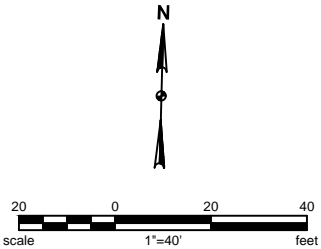
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	40	4

REMOVAL OF CURB & GUTTER	
STA. 63+50 TO 63+78 RT	28 LF
STA. 63+76 TO 63+93 LT	29 LF
STA. 65+15 TO 65+61 LT	46 LF
	103 LF

MILLING PAVEMENT SURFACE	
STA. 63+50 TO 68+00	1,835 SY



- MILLED PAVEMENT SURFACE
- REMOVAL OF CONCRETE PAVEMENT
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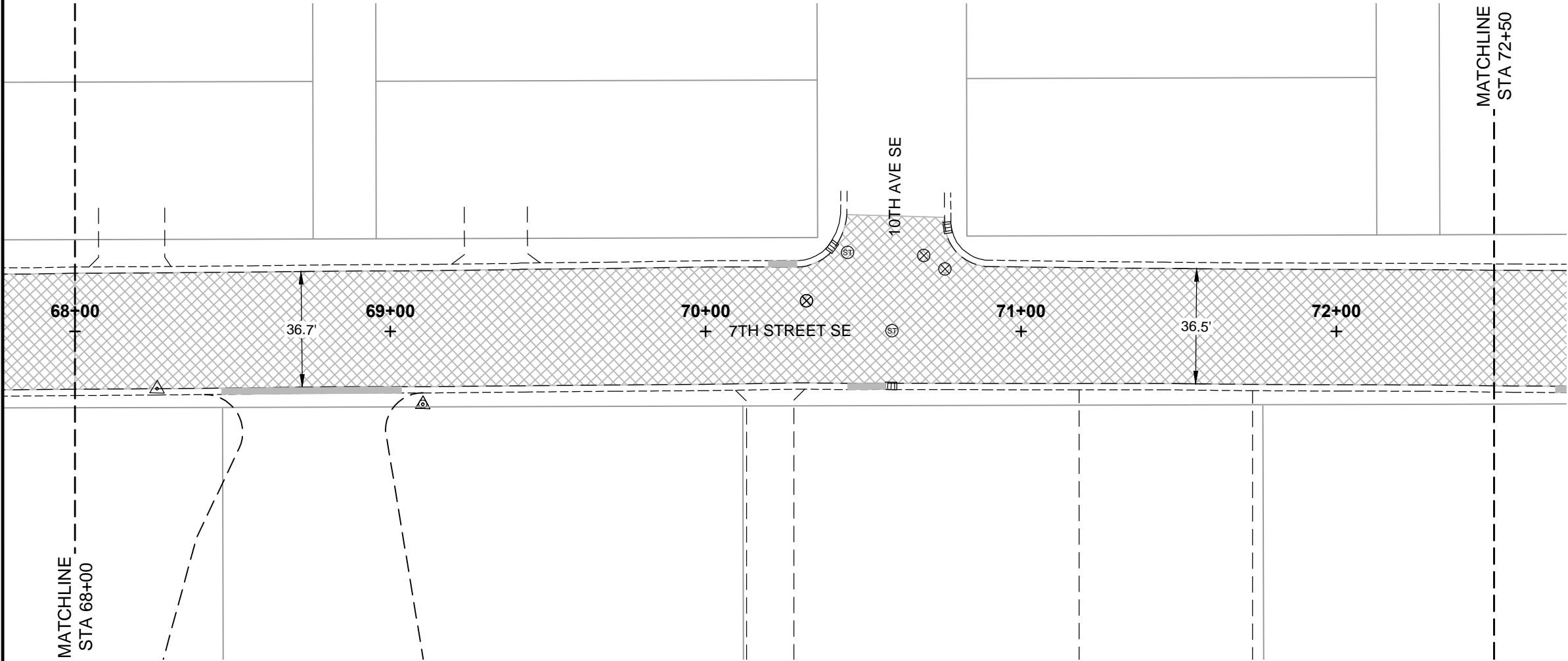
REMOVALS
STA. 63+50 TO 68+00





DRWN. BY ZV	CHKD BY CP	PROJECT NO. 5417100
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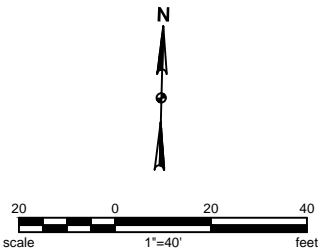
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	40	5

REMOVAL OF CURB & GUTTER	
STA. 68+46 TO 69+03 RT	57 LF
STA. 70+20 TO 70+29 LT	9 LF
STA. 70+45 TO 70+57 RT	12 LF
	78 LF


MILLING PAVEMENT SURFACE	
STA. 68+00 TO 72+50	1,907 SY



-  MILLED PAVEMENT SURFACE
-  REMOVAL OF CONCRETE PAVEMENT
-  REMOVAL OF CURB & GUTTER
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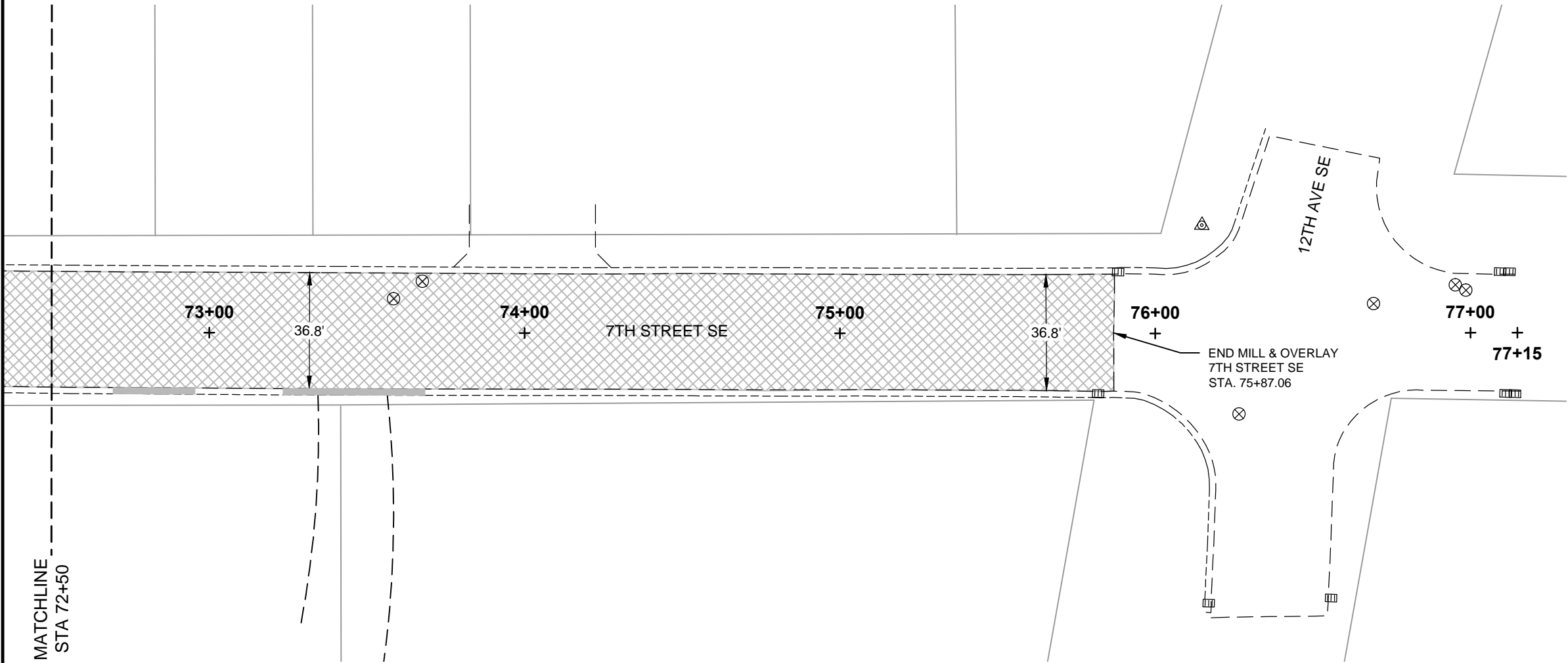
REMOVALS
STA. 68+00 TO 72+50

DRWN. BY ZV	CHKD BY CP	PROJECT NO. 5417100
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	40	6

REMOVAL OF CURB & GUTTER	
STA. 72+70 TO 72+96 RT	26 LF
STA. 73+23 TO 73+68 RT	45 LF
	71 LF

MILLING PAVEMENT SURFACE	
STA. 72+50 TO 75+87.06	1,375 SY



- MILLED PAVEMENT SURFACE
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CITY OF VALLEY CITY, NORTH DAKOTA



REMOVALS
STA. 72+50 TO 75+87.06

DRWN. BY ZV	CHKD BY CP	PROJECT NO. 5417100
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	90	1

AGGREGATE BASE COURSE CL 5	
CURB & GUTTER	5 TON
DRIVEWAY	5 TON
	10 TON
TACK COAT	
STA. 50+22.45 TO 54+50	89 GAL
SUPERPAVE FAA 43	
STA. 50+22.45 TO 54+50	247 TON
PG 58-28 ASPHALT CEMENT	
STA. 50+22.45 TO 54+50	16 TON
INLET PROTECTION-SPECIAL	
STA. 50+25 LT & RT	2 EA
STA. 52+74 LT & RT	2 EA
STA. 52+79 RT	1 EA
	5 EA
ADJUST GATE VALVE BOX	
STA. 50+81 LT	1 EA
ADJUST MANHOLE	
STA. 50+62 C.L.	1 EA
STA. 53+55 LT	1 EA
	2 EA
CURB & GUTTER-TYPE I	
STA. 50+26 TO 50+41 LT	23 LF
STA. 52+20 TO 52+72 RT	52 LF
	75 LF
DRIVEWAY CONCRETE	
STA. 52+46 RT	23 SY
PVMT MK PAINTED 4IN LINE	
STA. 50+22.45 TO 54+50	110 LF

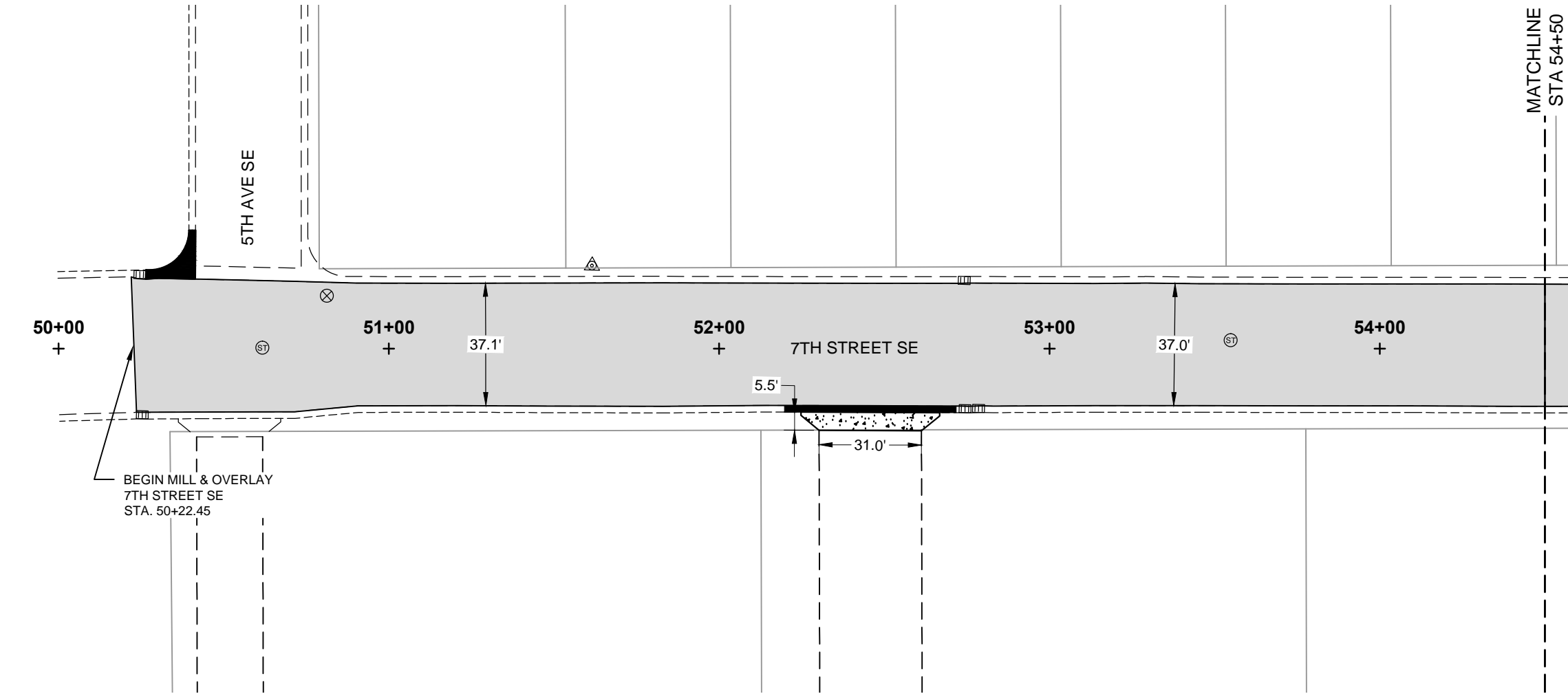
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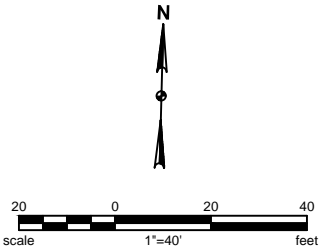


PAVING LAYOUT
STA. 50+22.45 TO 54+50

DRWN. BY	CHKD BY	PROJECT NO.
ZV	CP	5417100



- SUPERPAVE FAA 43
- CURB & GUTTER-TYPE I
- DRIVEWAY CONCRETE



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	90	2

AGGREGATE BASE COURSE CL 5	
CURB & GUTTER	11 TON
DRIVEWAY	10 TON
	21 TON

TACK COAT	
STA. 54+50 TO 59+00	92 GAL

SUPERPAVE FAA 43	
STA. 54+50 TO 59+00	256 TON

PG 58-28 ASPHALT CEMENT	
STA. 54+50 TO 59+00	17 TON

ADJUST GATE VALVE BOX	
STA. 56+35 RT	1 EA
STA. 56+72 LT	1 EA
	2 EA

ADJUST MANHOLE	
STA. 56+48 C.L.	1 EA

CURB & GUTTER-TYPE I	
STA. 56+02 TO 56+70 RT	68 LF
STA. 56+64 TO 56+80 LT	28 LF
STA. 57+82 TO 58+38 LT	56 LF
STA. 58+95 TO 59+00 LT	5 LF
	157 LF

DRIVEWAY CONCRETE	
STA. 58+10 LT	42 SY

PVMT MK PAINTED 4IN LINE	
STA. 54+50 TO 59+00	110 LF

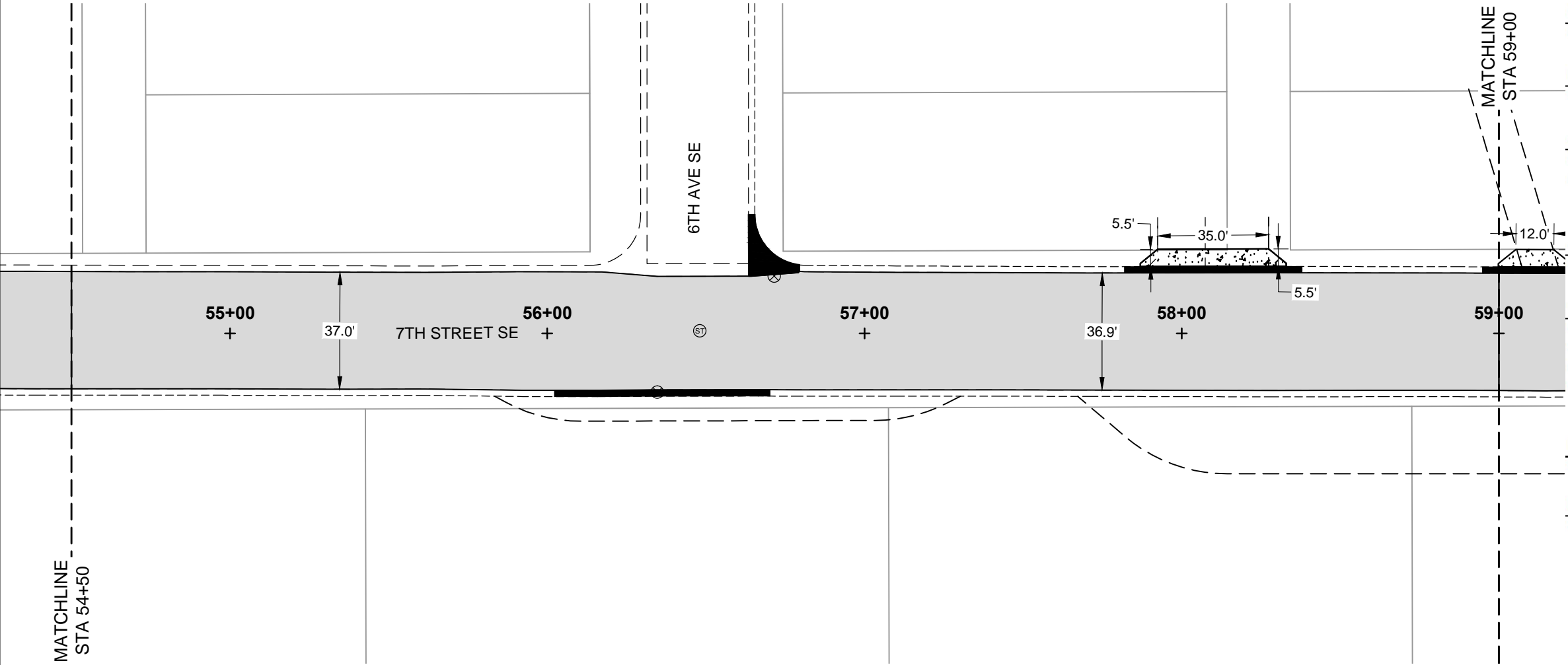
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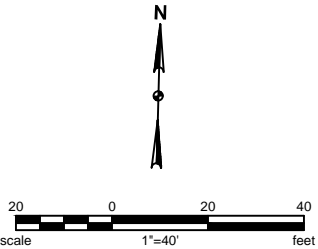


PAVING LAYOUT
STA. 54+50 TO 59+00

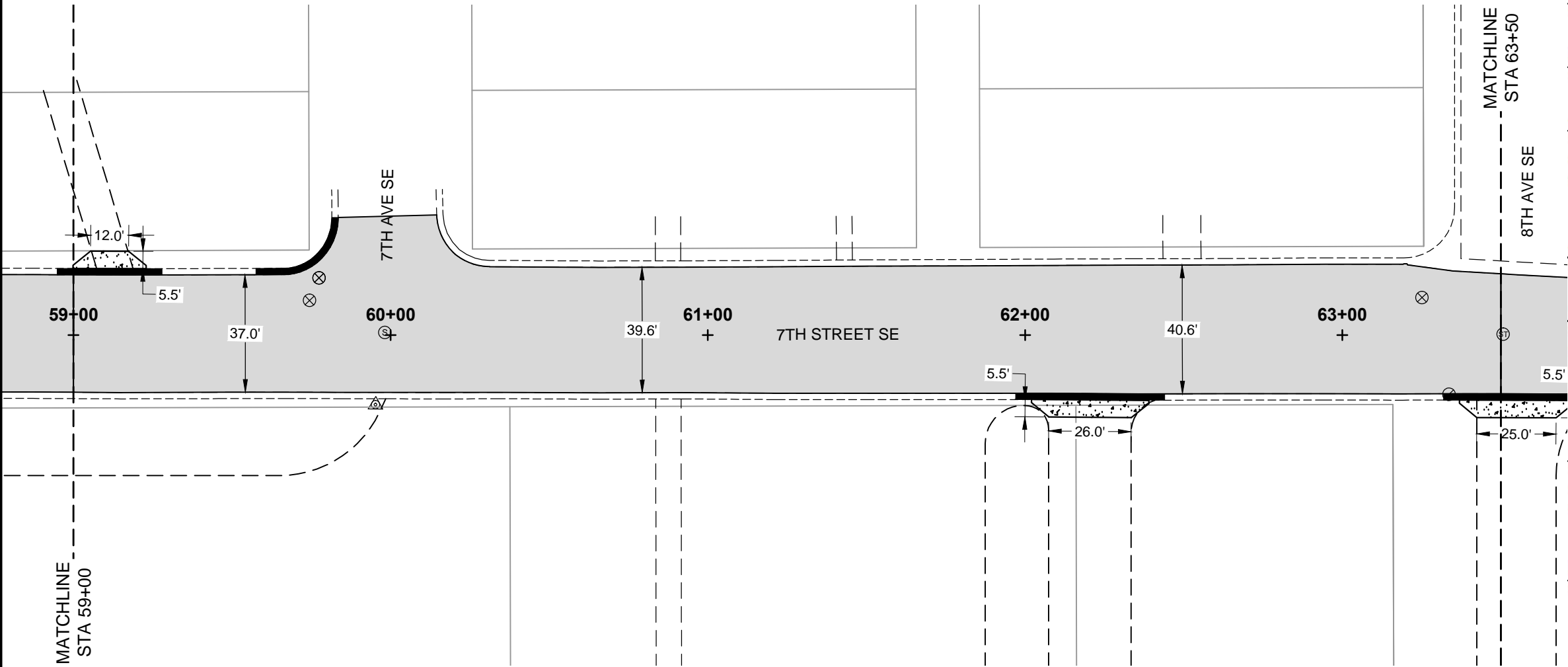
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- SUPERPAVE FAA 43
- CURB & GUTTER-TYPE I
- DRIVEWAY CONCRETE

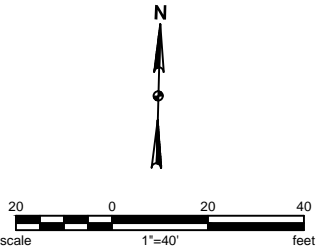


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	90	3



AGGREGATE BASE COURSE CL 5	
CURB & GUTTER	9 TON
DRIVEWAY	9 TON
	18 TON
TACK COAT	
STA. 59+00 TO 63+50	102 GAL
SUPERPAVE FAA 43	
STA. 59+00 TO 63+50	283 TON
PG 58-28 ASPHALT CEMENT	
STA. 59+00 TO 63+50	18 TON
ADJUST GATE VALVE BOX	
STA. 59+74 LT	1 EA
STA. 59+77 LT	1 EA
STA. 63+25 LT	1 EA
	3 EA
ADJUST MANHOLE	
STA. 59+98 C.L.	1 EA
CURB & GUTTER-TYPE I	
STA. 59+00 TO 59+28 LT	28 LF
STA. 59+58 TO 59+83 LT	35 LF
STA. 61+97 TO 62+44 RT	47 LF
STA. 63+32 TO 64+00 RT	18 LF
	128 LF
DRIVEWAY CONCRETE	
STA. 59+11 LT	11 SY
STA. 62+20 RT	20 SY
STA. 63+46 RT	7 SY
	38 SY
P/MT MK PAINTED 4IN LINE	
STA. 59+00 TO 63+50	110 LF

- SUPERPAVE FAA 43
- CURB & GUTTER-TYPE I
- DRIVEWAY CONCRETE



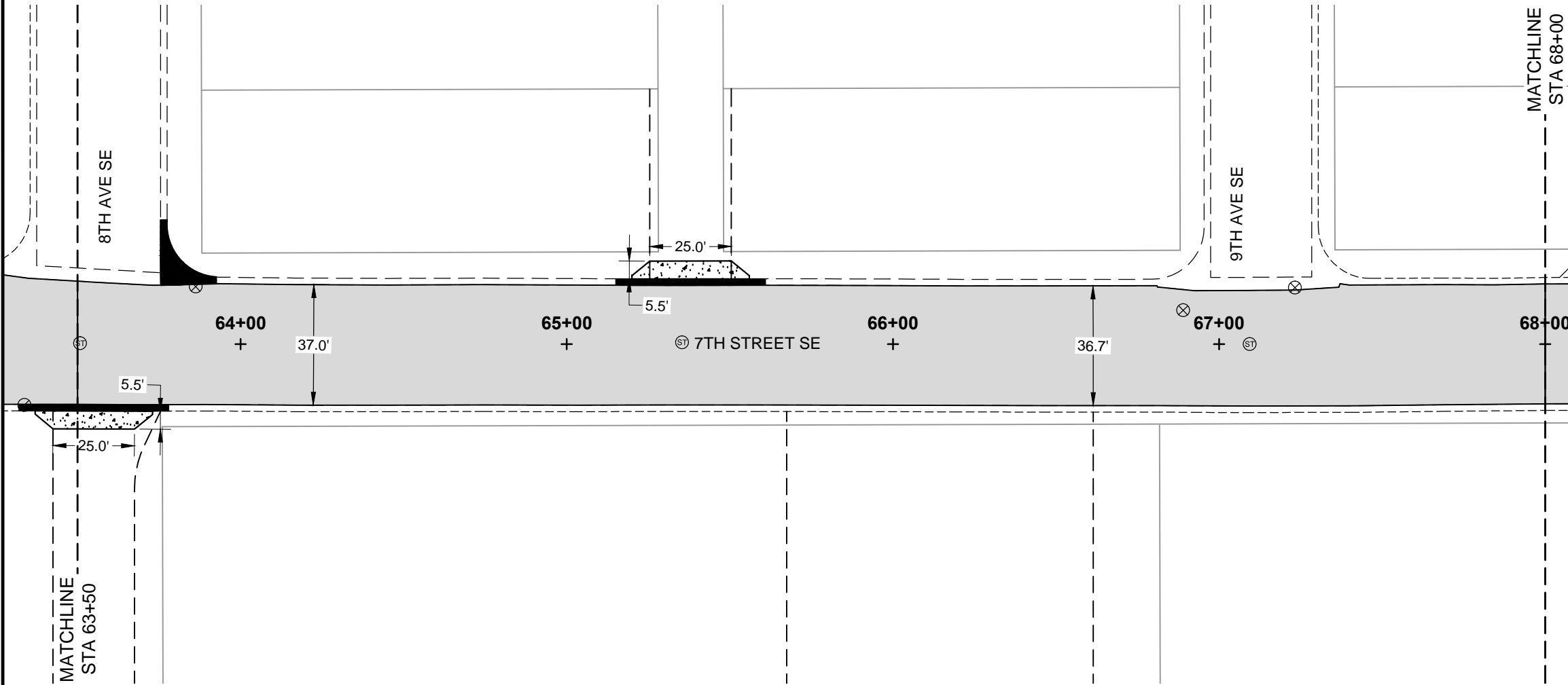
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PAVING LAYOUT
STA. 59+00 TO 63+50

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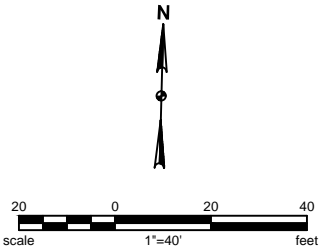
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	ND	SU-2-990(056)060	90	4



AGGREGATE BASE COURSE CL 5	
CURB & GUTTER	7 TON
DRIVEWAY	7 TON
TACK COAT	14 TON
STA. 63+50 TO 68+00	92 GAL
SUPERPAVE FAA 43	
STA. 63+50 TO 68+00	255 TON
PG 58-28 ASPHALT CEMENT	
STA. 63+50 TO 68+00	17 TON
ADJUST GATE VALVE BOX	
STA. 63+86 LT	1 EA
STA. 66+89 LT	1 EA
	2 EA
ADJUST MANHOLE	
STA. 63+51 C.L.	1 EA
STA. 65+35 C.L.	1 EA
STA. 67+09 C.L.	1 EA
	3 EA
CURB & GUTTER-TYPE I	
STA. 63+50 TO 63+78 RT	28 LF
STA. 63+76 TO 63+93 LT	29 LF
STA. 65+15 TO 65+61 LT	46 LF
	103 LF
DRIVEWAY CONCRETE	
STA. 63+55 RT	13 SY
STA. 65+38 LT	19 SY
	32 SY
PVMT MK PAINTED 4IN LINE	
STA. 63+50 TO 68+00	110 LF

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- SUPERPAVE FAA 43
- CURB & GUTTER-TYPE I
- DRIVEWAY CONCRETE

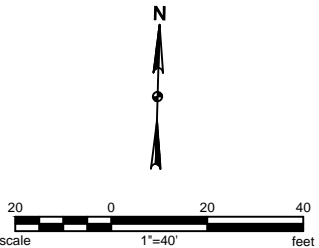
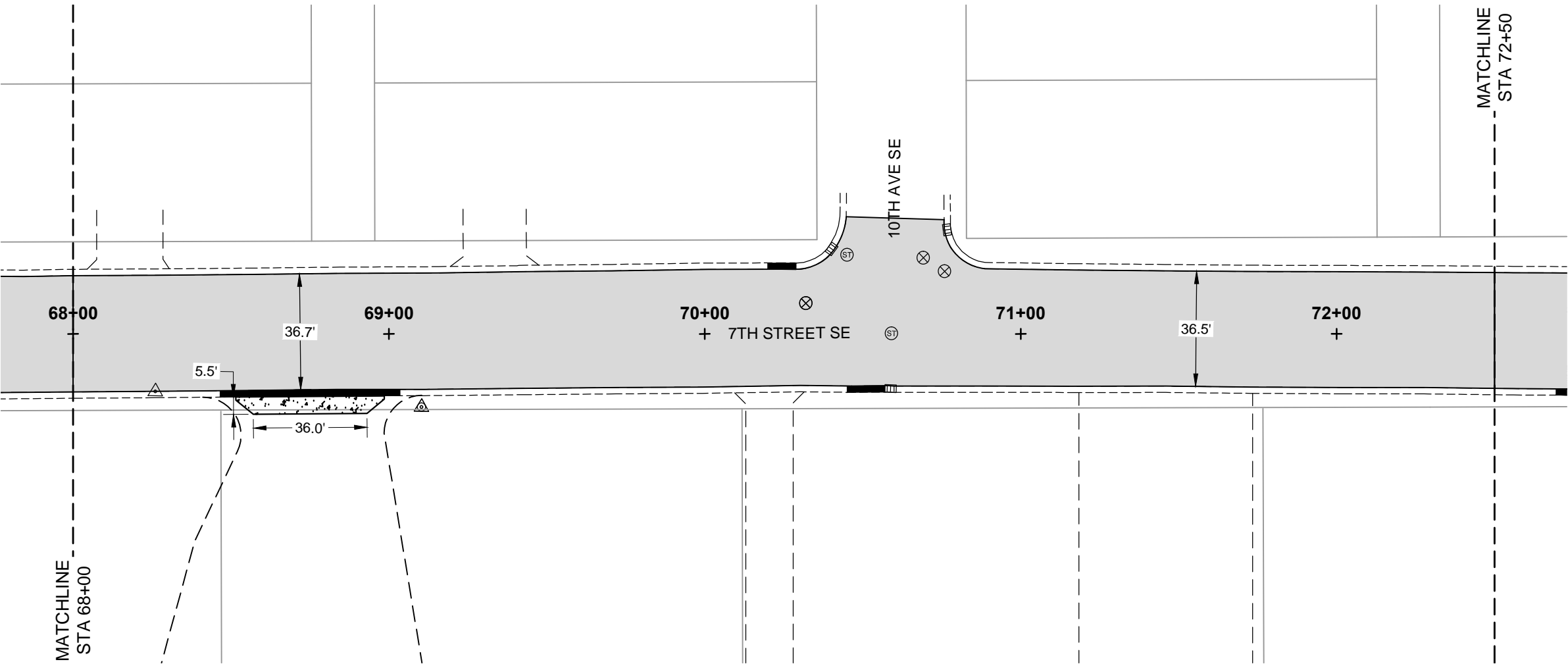


SU-2-990(056)060
CITY OF VALLEY CITY, NORTH DAKOTA

PAVING LAYOUT
STA. 63+50 TO 68+00

DRWN. BY ZV	CHKD BY CP	PROJECT NO. 5417100
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	90	5



AGGREGATE BASE COURSE CL 5	
CURB & GUTTER	5 TON
DRIVEWAY	6 TON
	11 TON
TACK COAT	
STA. 68+00 TO 72+50	95 GAL
SUPERPAVE FAA 43	
STA. 68+00 TO 72+50	265 TON

PG 58-28 ASPHALT CEMENT	
STA. 68+00 TO 72+50	17 TON
INLET PROTECTION-SPECIAL	
STA. 70+40 LT	1 EA
STA. 70+59 RT	1 EA
STA. 70+77 LT	1 EA
	3 EA

ADJUST GATE VALVE BOX	
STA. 70+32 LT	1 EA
STA. 70+69 LT	1 EA
STA. 70+76 LT	1 EA
	3 EA
ADJUST MANHOLE	
STA. 70+45 LT	1 EA
STA. 70+59 C.L.	1 EA
	2 EA

CURB & GUTTER-TYPE I	
STA. 68+46 TO 69+03 RT	57 LF
STA. 70+20 TO 70+29 LT	9 LF
STA. 70+45 TO 70+57 RT	12 LF
	78 LF
DRIVEWAY CONCRETE	
STA. 68+75 RT	26 SY
PVMT MK PAINTED 4IN LINE	
STA. 68+00 TO 72+50	110 LF

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- SUPERPAVE FAA 43
- CURB & GUTTER-TYPE I
- DRIVEWAY CONCRETE

SU-2-990(056)060
CITY OF VALLEY CITY, NORTH DAKOTA

PAVING LAYOUT
STA. 68+00 TO 72+50

DRWN. BY
ZV

CHKD BY
CP

PROJECT NO.
5417100

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	90	6

AGGREGATE BASE COURSE CL 5	
CURB & GUTTER	5 TON
DRIVEWAY	4 TON
	9 TON

TACK COAT	
STA. 72+50 TO 75+87.06	69 GAL

SUPERPAVE FAA 43	
STA. 72+50 TO 75+87.06	191 TON

PG 58-28 ASPHALT CEMENT	
STA. 72+50 TO 75+87.06	12 TON

INLET PROTECTION-SPECIAL	
STA. 75+82 RT	1 EA
STA. 75+88 LT	1 EA
	2 EA

ADJUST GATE VALVE BOX	
STA. 73+59 LT	1 EA
STA. 73+68 LT	1 EA
	2 EA

CURB & GUTTER-TYPE I	
STA. 72+70 TO 72+96 RT	26 LF
STA. 73+23 TO 73+68 RT	45 LF
	71 LF

DRIVEWAY CONCRETE	
STA. 73+46 RT	19 SY

PVMT MK PAINTED 4IN LINE	
STA. 72+50 TO 75+87.06	90 LF

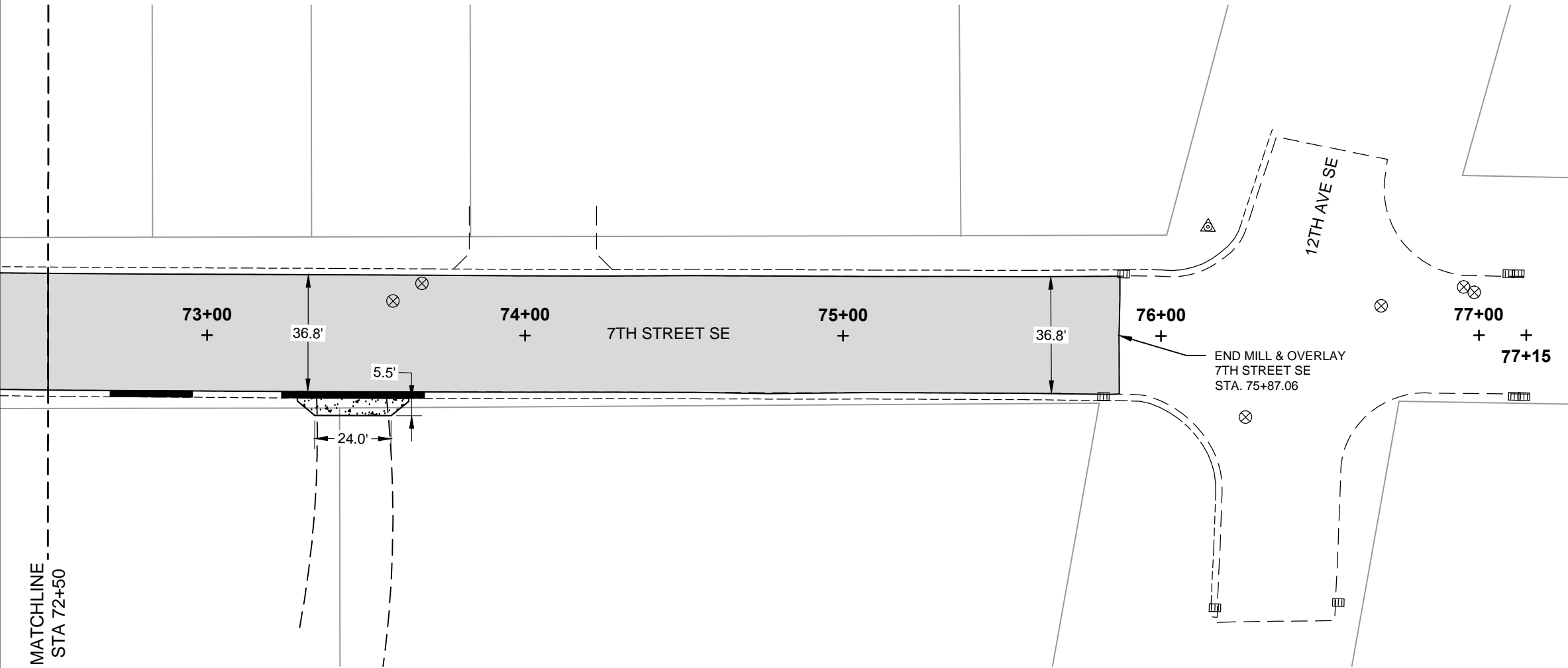
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CITY OF VALLEY CITY, NORTH DAKOTA

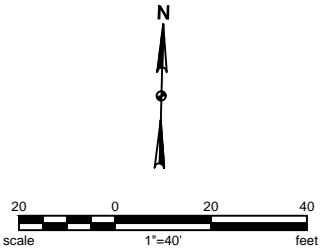


PAVING LAYOUT
STA. 72+50 TO 75+87.06

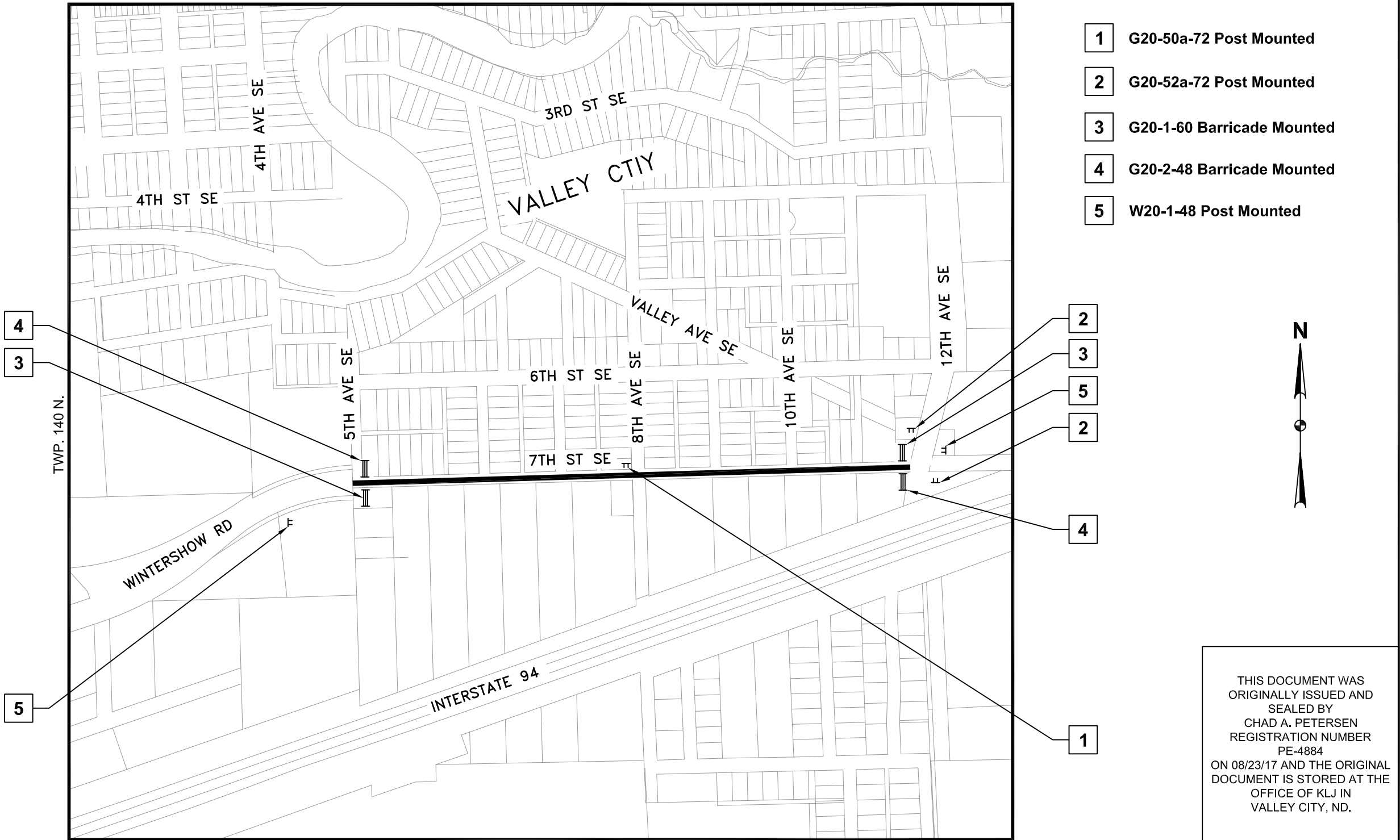
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- SUPERPAVE FAA 43
- CURB & GUTTER-TYPE I
- DRIVEWAY CONCRETE




	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-2-990(056)060	100	2



The sign layout as shown is for general information purposes only. The Contractor will be required to conform to MUTCD and the Standard Drawings when installing the traffic control signing.

SU-2-990(056)060
CITY OF VALLEY CITY, NORTH DAKOTA



TRAFFIC CONTROL
SIGNING LAYOUT

DRWN. BY JM	CHKD BY JL	PROJECT NO. 5417100
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?	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	BV	butterfly valve
Abut	abutment	Byp	bypass
Ac	acres	C Gdrl	cable guardrail
Adj	adjusted	Calc	calculate
Aggr	aggregate	Cd	candela
Ahd	ahead	CIP	cast iron pipe
ARV	air release valve	CB	catch basin
Align	alignment	CRS	cationic rapid setting
Al	alley	C Gd	cattle guard
Alt	alternate	C To C	center to center
Alum	aluminum	Cl or C_L	centerline
ADA	Americans with Disabilities Act	Cm	centimeter
A	ampere	Ch	chain
&	and	Chnlk	chain-link
Appr	approach	Ch Blk	channel block
Approx	approximate	Ch Ch	channel change
ACP	asbestos cement pipe	Chk	check
Asph	asphalt	Chsld	chiseled
AC	asphalt cement	Cir	circle
Assmd	assumed	Cl	class
@	at	Cl	clay
Atten	attenuation	Cl F	clay fill
ATR	automatic traffic recorder	Cl Hvy	clay heavy
Ave	Avenue	Cl Lm	clay loam
Avg	average	Clnt	clean-out
ADT	average daily traffic	Clr	clear
Az	azimuth	Cl&gr	clearing & grubbing
Bk	back	Co S	coal slack
BF	back face	Comb.	combination
Bs	backsight	Coml	commercial
Balc	balcony	Compr	compression
B Wire	barbed wire	CADD	computer aided drafting & design
Barr	barricade	Conc	concrete
Btry	battery	Cond	conductor
Brg	bearing	Const	construction
BI	beehive inlet	Cont	continuous
Beg	begin	CSB	continuous split barrel sample
BM	bench mark	Contr	contraction
Bkwy	bikeway	Contr	contractor
Bit	bituminous	CP	control point
Blk	block	Coord	coordinate
Bd Ft	board feet	Cor	corner
BH	bore hole	Corr	corrected
BS	both sides	CAES	corrugated aluminum end section
Bot	bottom	CAP	corrugated aluminum pipe
Blvd	Boulevard	CMES	corrugated metal end section
Bndry	boundary	CMP	corrugated metal pipe
BC	brass cap	CPVCP	corrugated poly-vinyl chloride pipe
Brkwy	breakaway	CSES	corrugated steel end section
Br	bridge	CSP	corrugated steel pipe
Bldg	building	CSP	corrugated steel pipe
		C	coulomb
		Co	County
		Crse	course
		C Gr	course gravel
		CS	course sand
		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
		DInt	delineate
		DIntr	delineator
		Depr	depression
		Desc	description
		Det	detail
		DWP	detectable warning panel
		Dtr	detour
		Dia	diameter
		Dir	direction
		Dist	distance
		DM	disturbed material
		DB	ditch block
		DG	ditch grade
		Dbl	double
		Dn	down
		Dwg	drawing
		Dr	drive
		Drwy	driveway
		DI	drop inlet
		D	dry density
		Ea	each
		Esmt	easement
		E	East
		EB	Eastbound
		Elast	elastomeric
		EL	electric locker
		E Mtr	electric meter
		Elec	electric/al
		EDM	electronic distance meter
		Elev or El	elevation
		Ellipt	elliptical
		Emb	embankment
		Emuls	emulsion/emulsified
		ES	end section
		Engr	engineer
		ESS	environmental sensor station
		Eq	equal
		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
		FI	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
		Fnd	found
		Fdn	foundation
		Frac	fractional
		Frwy	freeway
		Frt	front
		FF	front face
		F Disp	fuel dispenser

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

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NDDOT ABBREVIATIONS

D-101-2

FFP	fuel filler pipes	IPn	Iron Pin	MC	medium curing	Ped	pedestal
FLS	fuel leak sensor	IP	Iron Pipe	M	mega	Ped	pedestrian
Furn	furnish/ed	Jt	joint	Mer	meridian	PPP	pedestrian pushbutton post
Gal	gallon	J	joule	M	meter	Pen.	penetration
Galv	galvanized	Jct	junction	M/s	meters per second	Perf	perforated
Gar	garage	K	kelvin	M	mid ordinate of curve	Per.	perimeter
Gs L	gas line	Kn	kilo newton	Mi	mile	PL	pipeline
G Reg	gas line regulator	Kpa	kilo pascal	MM	mile marker	PI	place
GMV	gas main valve	Kg	kilogram	MP	mile post	P&P	plan & profile
G Mtr	gas meter	Kg/m3	kilogram per cubic meter	MI	milliliter	PL	plastic limit
GSV	gas service valve	Km	kilometer	Mm	millimeter	PI	plate
GVP	gas vent pipe	K	Kip(s)	Mm/hr	millimeters per hour	Pt	point
GV	gate valve	LS	Land Surveyor (licensed)	Min	minimum	PCC	point of compound curve
Ga	gauge	LSIT	Land Surveyor In Training	Misc	miscellaneous	PC	point of curve
Geod	geodetic	Ln	lane	Mon	monument	PI	point of intersection
GIS	Geographical Information System	Lg	large	Mnd	mound	PRC	point of reverse curvature
G	giga	Lat	latitude	Mtbl	mountable	PT	point of tangent
GPS	Global Positioning System	Lt	left	Mtd	mounted	POC	point on curve
Gov	government	L	length of curve	Mtg	mounting	POT	point on tangent
Grd	graded/grade	Lens	lenses	Mk	muck	PE	polyethylene
Gr	gravel	Lvl	level	Mun	municipal	PVC	polyvinyl chloride
Grnd	ground	LB	level book	N	nano	PCC	Portland Cement concrete
GWM	ground water monitor	Lvlng	leveling	NGS	National Geodetic Survey	Lb or #	pounds
Gdrl	guardrail	Lht	light	NS	near side	PP	power pole
Gtr	gutter	LP	light pole	Neop	neoprene	Preempt	preemption
H Plg	H piling	Ltg	lighting	Ntwk	network	Prefab	prefabricated
Hdwl	headwall	Lig Co	lignite coal	N	newton	Prfmd	preformed
Ha	hectare	Lig Sl	lignite slack	N	North	Prep	preperation
Ht	height	LF	linear foot	NE	North East	Press.	pressure
HI	height of instrument	Liq	liquid	NW	North West	PRV	pressure relief valve
Hel	helical	LL	liquid limit	NB	Northbound	Prestr	prestressed
H	henry	L	litre	No. or #	number	Pvt	private
Hz	hertz	Lm	loam	Obsc	obscure(d)	PD	private drive
HDPE	high density polyethylene	Loc	location	Obsn	observation	Prod.	production/produce
HM	high mast	LC	long chord	Ocpd	occupied	Prog	programmed
HP	high pressure	Long.	longitude	Ocpy	occupy	Prop.	property
HPS	high pressure sodium	Lp	loop	Off Loc	office location	Prop Ln	property line
Hwy	highway	LD	loop detector	O/s	offset	Ppsd	proposed
Hor	horizontal	Lm	lumen	OC	on center	PB	pull box
HBP	hot bituminous pavement	Lum	luminaire	C	one dimensional consolidation		
HMA	hot mix asphalt	L Sum	lump sum	OC	organic content		
Hr	hour(s)	Lx	lux	Orig	original		
Hyd	hydrant	ML	main line	O To O	out to out		
Ph	hydrogen ion content	M Hr	man hour	OD	outside diameter		
Id	identification	MH	manhole	OH	overhead		
In or "	inch	Mkd	marked	PMT	pad mounted transformer		
Incl	inclinometer tube	Mkr	marker	Pg	pages		
IMH	inlet manhole	Mkg	marking	Pntd	painted		
ID	inside diameter	MA	mast arm	Pr	pair		
Inst	instrument	Matl	material	Pnl	panel		
Intchg	interchange	Max	maximum	Pk	park		
Intmdt	intermediate	MC	meander corner	PK	Parker-Kalon nail		
Intscn	intersection	Meas	measure	Pa	pascal		
Inv	invert	Mdn	median	PSD	passing sight distance		
IM	iron monument	MD	median drain	Pvmt	pavement		

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
08-03-15	General Revisions

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NDDOT ABBREVIATIONS

D-101-3

Qty	quantity	SN	sign number	Tan	tangent	Wb	weber
Qtr	quarter	Sig	signal	T	tangent (semi)	WIM	weigh in motion
Rad or R	radius	Si Cl	silt clay	TS	tangent to spiral	W	west
RR	railroad	Si Cl Lm	silty clay loam	Tel	telephone	WB	westbound
Rlwy	railway	Si Lm	silty loam	Tel B	Telephone Booth	Wrng	wiring
Rsd	raised	Sgl	single	Tel P	telephone pole	W/	with
RTP	random traverse point	SC	slow curing	Tv	television	W/o	without
Rge or R	range	SS	slow setting	Temp	temperature	WC	witness corner
RC	rapid curing	Sm	small	Temp	temporary	WGS	world geodetic system
Rec	record	S	South	TBM	temporary bench mark	Z	zenith
Rcy	recycle	SE	South East	T	tesla		
RAP	recycled asphalt pavement	SW	South West	T	thinwall tube sample		
RPCC	recycled portland cement concrete	SB	Southbound	T/mi	tons per mile		
Ref	reference	Sp	spaces	Ts	topsoil		
R Mkr	reference marker	Spcl	special	Twp or T	township		
RM	reference monument	SA	special assembly	Traf	traffic		
Refl	reflectorized	SP	special provisions	TSCB	traffic signal control box		
RCB	reinforced concrete box	G	specific gravity	Tr	trail		
RCES	reinforced concrete end section	Spk	spike	Transf	transformer		
RCP	reinforced concrete pipe	SC	spiral to curve	TB	transit book		
RCPS	reinforced concrete pipe sewer	ST	spiral to tangent	Trans	transition		
Reinf	reinforcement	SB	split barrel sample	TT	transmission tower		
Res	reservation	SH	sprinkler head	Trans	transverse		
Ret	retaining	SV	sprinkler valve	Trav	traverse		
Rev	reverse	Sq	square	TP	traverse point		
Rt	right	SF	square feet	Trtd	treated		
R/W	right of way	Km2	square kilometer	Trmt	treatment		
Riv	river	M2	square meter	Qc	triaxial compression		
Rd	road	SY	square yard	TERO	tribal employment rights ordinance		
Rdbd	road bed	Stk	stake	Tpl	triple		
Rdwy	roadway	Std	standard	TP	turning point		
RWIS	roadway weather information system	N	standard penetration test	Typ	typical		
Rk	rock	Std Specs	standard specifications	Qu	unconfined compressive strength		
Rt	route	Sta	station	Ugrnd	underground		
Salv	salvage(d)	Sta Yd	station yards	USC&G	US Coast & Geodetic Survey		
Sd	sand	Stm L	steam line	USGS	US Geologic Survey		
Sdy Cl	sandy clay	SEC	steel encased concrete	Util	utility		
Sdy Cl Lm	sandy clay loam	SMA	stone matrix asphalt	VG	valley gutter		
Sdy Fl	sandy fill	SSD	stopping sight distance	Vap	vapor		
Sdy Lm	sandy loam	SD	storm drain	Vert	vertical		
San	sanitary sewer line	St	street	VC	vertical curve		
Sc	scoria	SPP	structural plate pipe	VCP	vitrified clay pipe		
Sec	seconds	SPPA	structural plate pipe arch	V	volt		
Sec	section	Str	structure	Vol	volume		
SL	section line	Subd	subdivision	Wkwy	walkway		
Sep	separation	Sub	subgrade	W	water content		
Seq	sequence	Sub Prep	subgrade preperation	WGV	water gate valve		
Serv	service	Ss	subsoil	WL	water line		
Sh	shale	SE	superelevation	WM	water main		
Sht	sheet	SS	supplement specification	WMV	water main valve		
Shtng	sheeting	Supp	supplemental	W Mtr	water meter		
Shldr	shoulder	Surf	surfacing	WSV	water service valve		
Sw	sidewalk	Surv	survey	WW	water well		
S	siemens	Sym	symmetrical	W	watt		
SD	sight distance	SI	systems international	Wrng	wearing		

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
08-03-15	General Revisions

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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 Associated 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
DICKY R NET Dickey Rural Networks
DICKY RWU Dickey Rural Water Users Association
DICKY 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-trail Water District
GETTY TRD & TRAN Getty Trading & Transportation
GLDN W ELEC Golden West Electric Cooperative
GRGS CO TEL Griggs County Telephone

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 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
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
RAMSEY R SEW Ramsey Rural Sewer Association
RAMSEY RW Ramsey Rural Water Association
RAMSEY UTIL Ramsey County Rural Utilities

RED RIV TEL Red River Rural Telephone
RESVTN TEL Reservation Telephone
ROBRTS TEL Roberts Company Telephone
R-RIDER ELEC Roughrider Electric Coop
RRVW Red River Valley & Western Railroad
RSR ELEC R.S.R. Electric Cooperative
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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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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

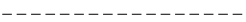
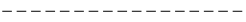




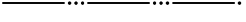






	Existing Overhead Sign Structure
	Existing Overhead Sign Structure Cantilever
	Overhead Sign Structure Cantilever

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
09-23-16	Added and Revised Items, Organized by Functional Groups

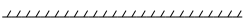








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Line Styles

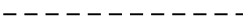
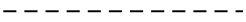
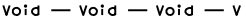
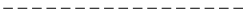




Right Of Way

	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


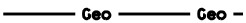





Boundary Control

	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)
	Existing Concrete
	Existing Aggregate (Cross Section View)
	Existing Curb and Gutter (Cross Section View)
	Existing Asphalt (Cross Section View)
	Existing Reinforcement Rebar

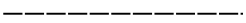
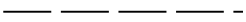
Geotechnical

	Geotextile Fabric Type D
	Geogrid
	Geotextile Fabric Type R
	Geotextile Fabric Type R1
	Geotextile Fabric Type RR
	Geotextile Fabric Type S
	Subgrade Reinforcement


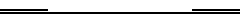

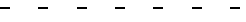


Countours

	Depression Contours
	Supplemental Contour

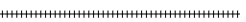
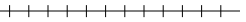
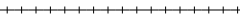
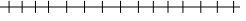
Profile

	Subgrade, Subcut or Ditch Grade
	Topsoil Profile



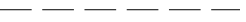


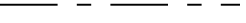
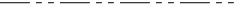


Striping

	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

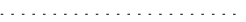



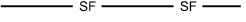

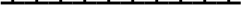
Pavement Joints

	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



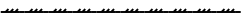
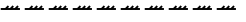
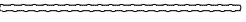
Bridge Details

	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
	Silt Fence
	Excavation Limits
	Fiber Rolls

Environmental

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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



























































































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Symbols

	North Arrow (Half Scale)		Attenuation Device		Existing Railroad Battery Box		Existing Delineator Type E										
	Truck Mounted Attenuator		Diamond Grade Delineator Type A		Existing Bush or Shrub		Existing EFB Misc										
	Type I Barricade		Diamond Grade Delineator Type B		Existing Gas Cap or Stub		Existing Flashing Beacon										
	Type II Barricade		Diamond Grade Delineator Type C		Existing Sanitary Cap or Stub		Existing Pipe Mounted Flasher										
	Type III Barricade		Diamond Grade Delineator Type D		Existing Storm Drain Cap or Stub		Existing Pad Mounted Feed Point										
	Catch Basin		Diamond Grade Delineator Type E		Existing Water Cap or Stub		Existing Pipe Mounted Feed Point with Pad										
	Cairn or Stone Circle		Flexible Delineator		Existing Sanitary Cleanout		Existing Pole Mounted Feed Point										
	Video Detection Camera		Flexible Delineator Type A		Existing Concrete Foundation		Existing Railroad Frog										
	Storm Drain Cap or Stub		Flexible Delineator Type B		Existing Traffic Signal Controller		Existing Snow Gate 18										
	Corrugated Metal End Section 18 Inch		Flexible Delineator Type C		Existing Pad Mounted Signal Controller		Existing Snow Gate 28										
	Corrugated Metal End Section 24 Inch		Flexible Delineator Type D		Existing Sixteenth Section Corner		Existing Snow Gate 40										
	Corrugated Metal End Section 30 Inch		Flexible Delineator Type E		Existing Quarter Section Corner		Existing Headwall										
	Corrugated Metal End Section 36 Inch		Delineator Type A		Existing Section Corner		Existing Pedestrian Head with Number										
	Corrugated Metal End Section 42 Inch		Delineator Type A Reset		Existing Railroad Crossbuck		Existing Signal Head										
	Corrugated Metal End Section 48 Inch		Delineator Type B		Existing Satellite Dish		Existing Sprinkler Head										
	Concrete Foundation		Delineator Type B Reset		Existing Fuel Dispensers		Existing Fire Hydrant										
	Ground Connection Conductor		Delineator Type C		Existing Flexible Delineator Type A		Existing Catch Basin Drop Inlet										
	Neutral Connection Conductor		Delineator Type D		Existing Flexible Delineator Type B		Existing Curb Inlet										
	Phase 1 Connection Conductor		Delineator Type E		Existing Flexible Delineator Type C		Existing Manhole Inlet										
	Phase 2 Connection Conductor		Delineator Drums		Existing Flexible Delineator Type D		Existing Junction Box										
	Traffic Cone		Spot Elevation		Existing Flexible Delineator Type E	<table><tr><th colspan="2">NORTH DAKOTA DEPARTMENT OF TRANSPORTATION</th></tr><tr><th colspan="2">07-01-14</th></tr><tr><th colspan="2">REVISIONS</th></tr><tr><th>DATE</th><th>CHANGE</th></tr><tr><td></td><td></td></tr></table>		NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		07-01-14		REVISIONS		DATE	CHANGE		
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION																	
07-01-14																	
REVISIONS																	
DATE	CHANGE																
	Signal Controller		Existing Access Control Arrow		Existing Delineator Type A												
	Pad Mounted Signal Controller		Existing Artifact		Existing Delineator Type B												
	Alignment Data Point		Existing Flashing Beacon		Existing Delineator Type C												
	Emergency Vehicle Detector		Existing Benchmark		Existing Delineator Type D												

Symbols

D-101-31

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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Symbols



Pad Mounted Feed Point



Pipe Mounted Feed Point with Pad



Pole Mounted Feed Point



Headwall



Double Headwall with Vegetation Barrier



Single Headwall with Vegetation 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



Flight Auger Sample



Split Barrel Sample



Thinwall Tube Sample



Highway Sign



SNOW GATE 18 FT



SNOW GATE 28 FT



SNOW GATE 40 FT



Standard Penetration Test



Transformer



Inclinometer Tube



Underdrain Cleanout



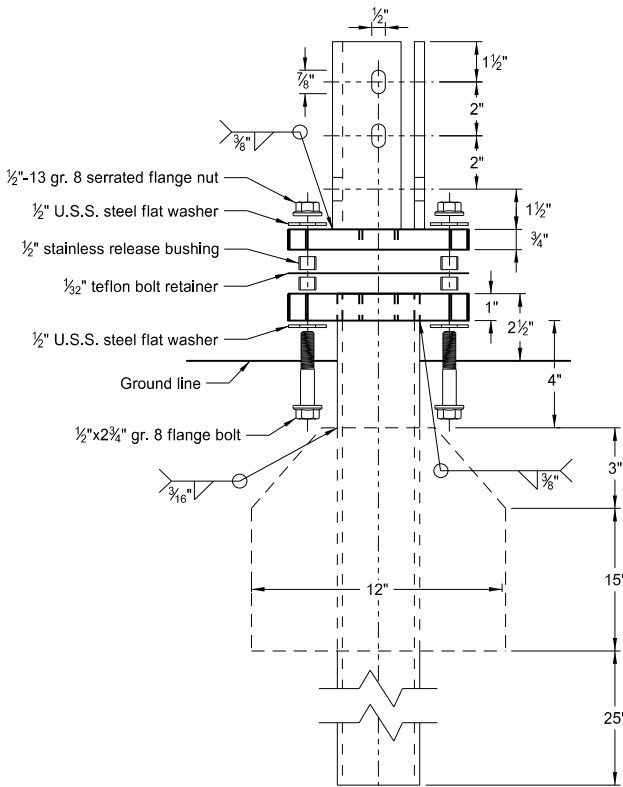
Excavation Unit



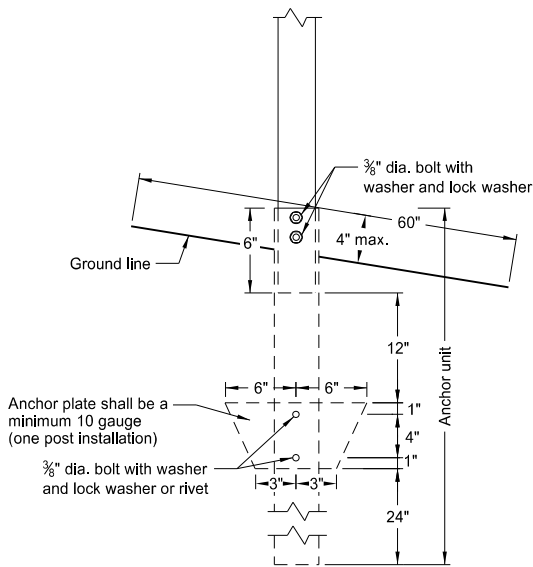
Water Valve

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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DATE	CHANGE

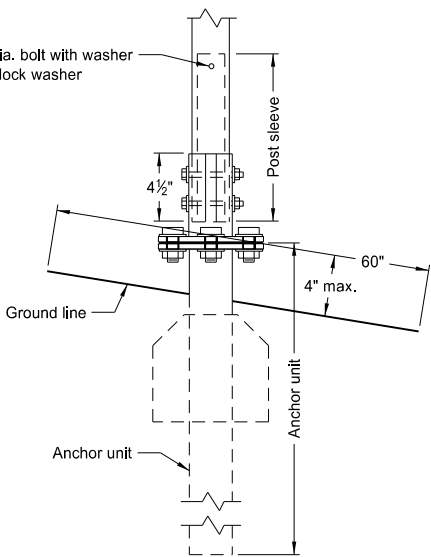
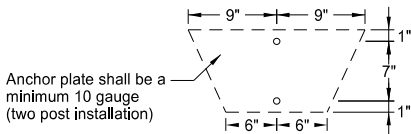
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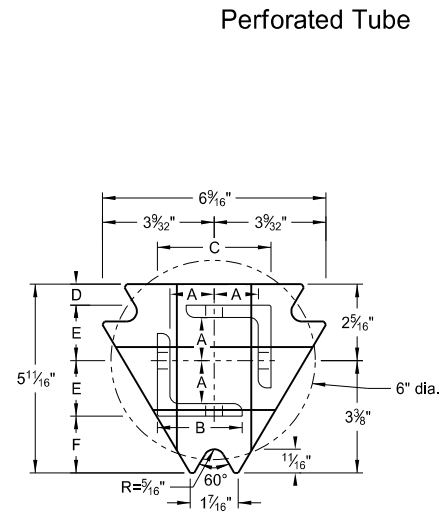
Multi-Directional Slip Base Assembly



Anchor Unit and Post Assembly

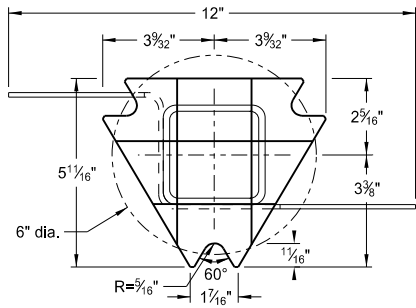


Multi-Directional Slip Base Anchor Unit and Post Sleeve Assembly



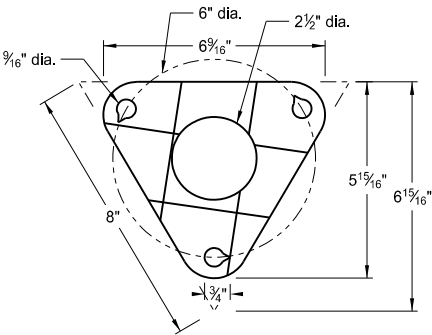
Top Post Receiver

Plate - ASTM A572 grade 50
Angle Receiver - 2 1/2"x2 1/2"x3/8" ASTM A36 structural angle



Bottom Soil Stub

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



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

Notes:

1. Slip base bolts shall be torqued as specified by the manufacturer.
2. Anchor shall have a yield strength of 43.9 KSI and tensile strength of 59.3 KSI.
3. The 4" vertical clearance is required for the anchor or breakaway base. The 4"x60" measurement shall be made above and below post location and also back and ahead of the post.
4. When used in concrete sidewalk, anchor shall be same except without the wings.
5. Four post signs shall have over 7' between the first and the fourth posts.

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

Properties of Telescoping Perforated Tube						
Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia in. ⁴	Cross Sec. Area in. ²	Section Modulus in. ³
1 1/2 x 1 1/2	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2 1/4 x 2 1/4	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2 1/2 x 2 1/2	0.105	12	3.141	0.804	0.803	0.643
2 1/2 x 2 1/2	0.135	10	4.006	0.979	1.010	0.785

Top Post Receiver Data Table						
Square Post Sizes (B)	A	B	C	D	E	F
2 3/16"x10 ga.	1 9/64"	2 1/2"	3 1/32"	2 5/32"	1 33/64"	1 7/8"
2 1/2"x10 ga.	1 9/32"	2 1/2"	3 5/16"	5/8"	1 21/32"	1 3/4"

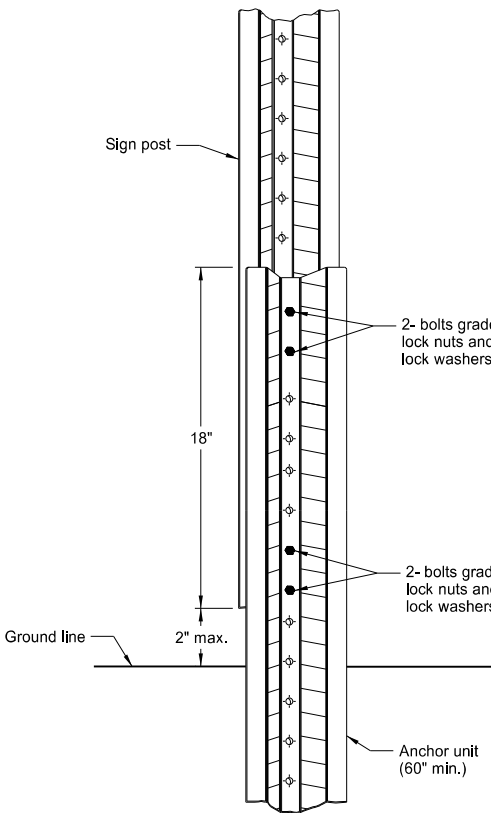
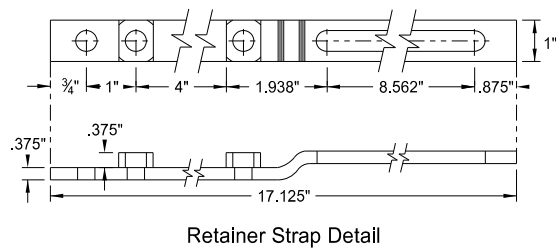
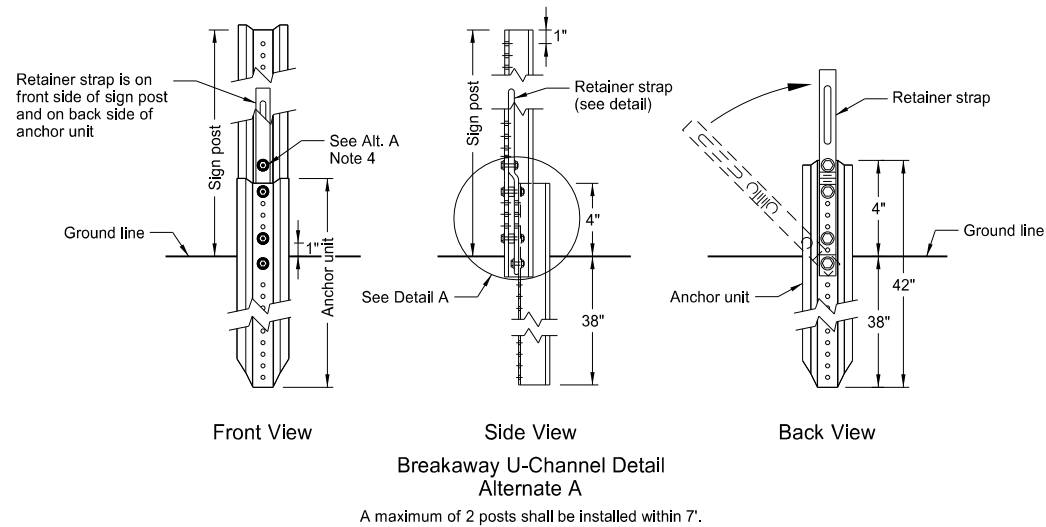
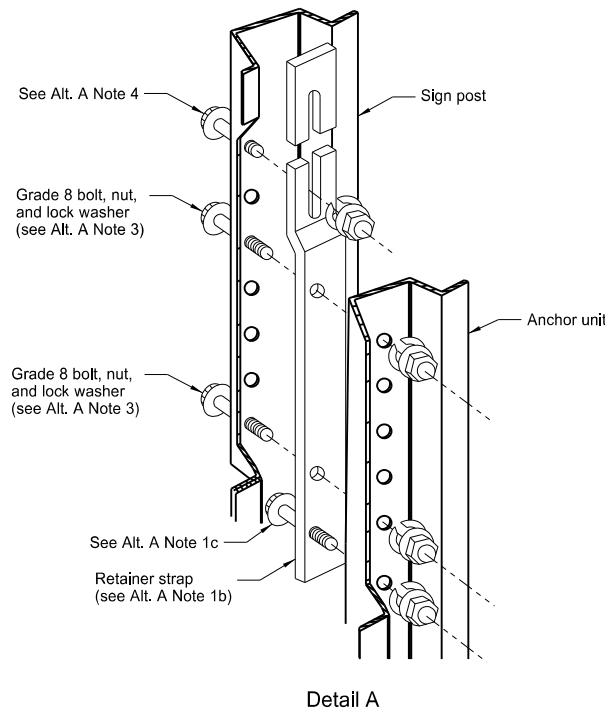
(A) The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak.

(B) The 2 3/16"x10 ga. may be inserted into 2 1/2"x10 ga. for additional wind load.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
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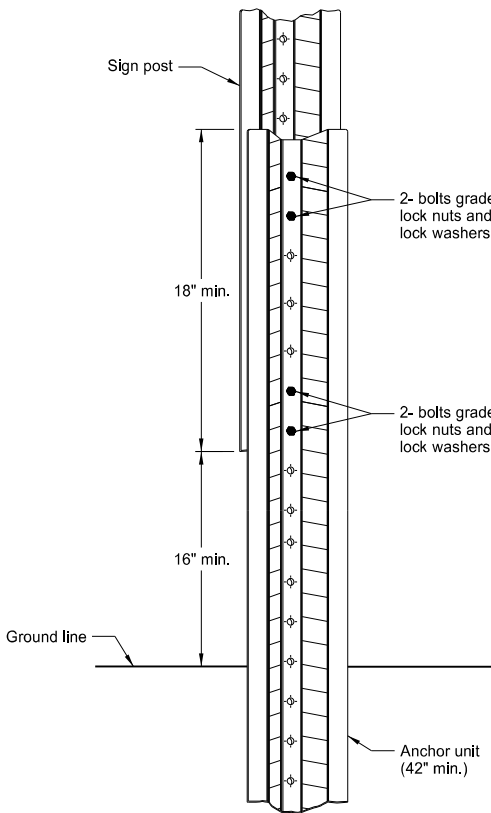
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U-Channel Post



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

A maximum of 3 posts shall be installed within 7'.



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

A maximum of 3 posts shall be installed within 7'.

Alternate A Steps of Installation:

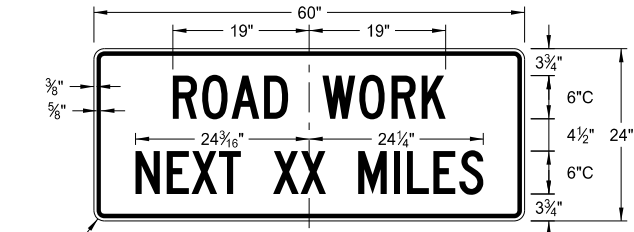
- Drive anchor unit to within 12" of ground level.
 - Proper assembly established by lining up the bottom hole of retainer strap with the 6th hole from the top of the anchor unit.
 - Assemble strap to back of anchor unit using $\frac{5}{16}$ "x2" bolt, lock washer and nut.
 - Rotate strap 90° to left.
- Drive anchor unit to 4" above ground.
 - Rotate strap to vertical position.
- Place $\frac{5}{16}$ "x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.
 - Alternately tighten two connector bolts.
- Complete assembly by tightening $\frac{5}{16}$ "x2" bolt (this fastens sign post to retainer strap).
- The base post, strap and sign post shall be properly nested. Proper nesting occurs when all flat surfaces of the base post, strap, and sign post at the bolts have full contact across the entire width.

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2-28-14	
REVISIONS	
DATE	CHANGE

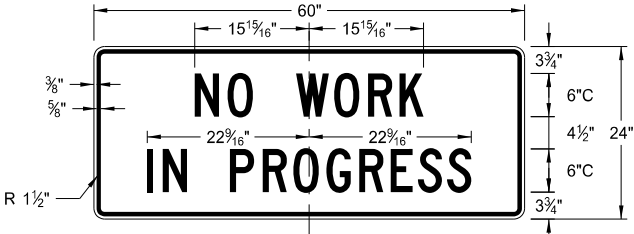
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CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS

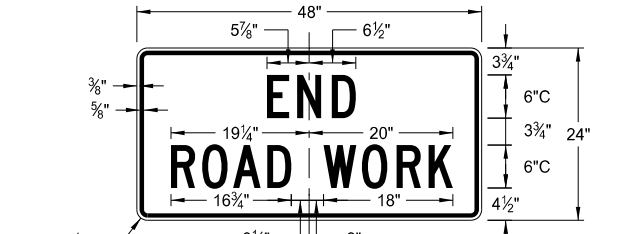
D-704-9



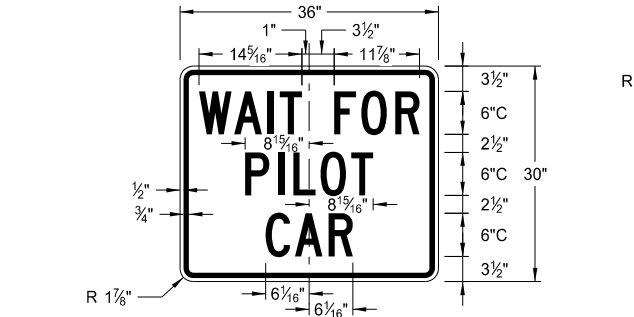
G20-1-60
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Background: orange



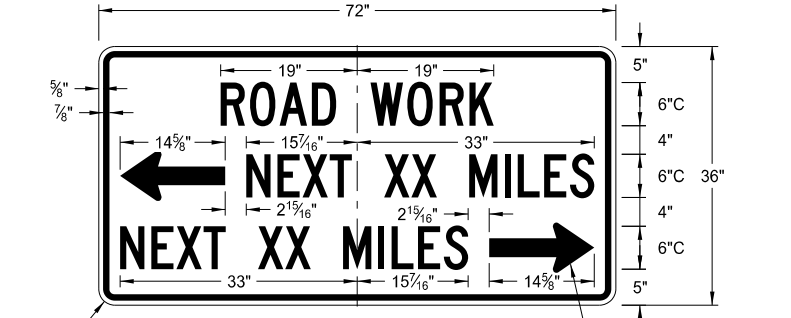
G20-1b-60
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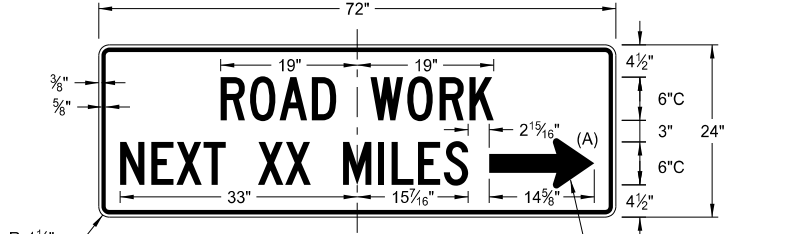
G20-2-48
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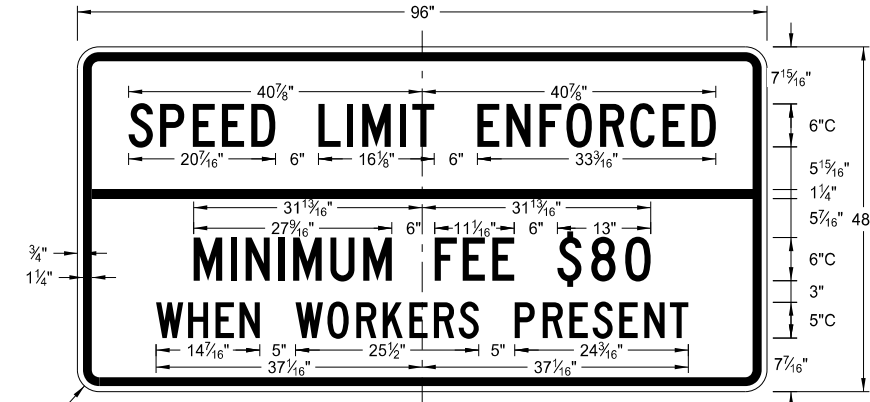
G20-4b-36
Legend: black (non-refl)
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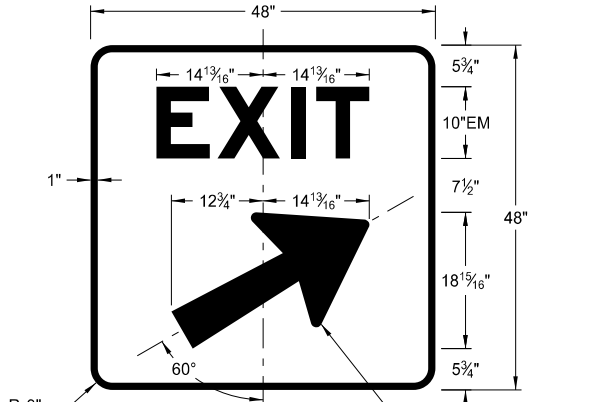
G20-50a-72
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Background: orange



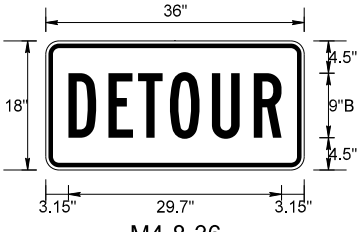
G20-52a-72
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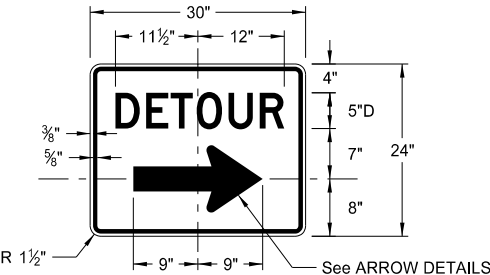
G20-55-96
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Background: orange



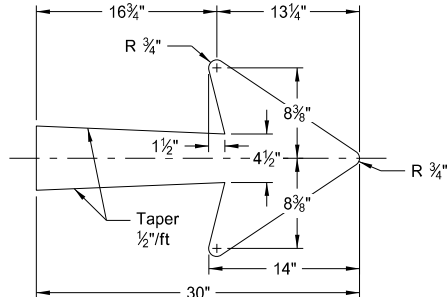
E5-1(L or R)-48
Legend: white
Background: green (orange optional)



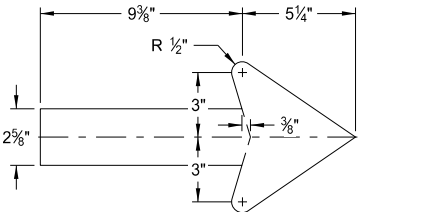
M4-8-36
Legend: black (non-refl)
Background: orange



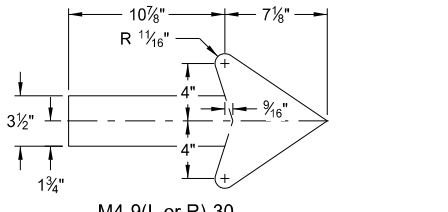
M4-9(L or R)-30 &
M4-9-30
Legend: black (non-refl)
Background: orange



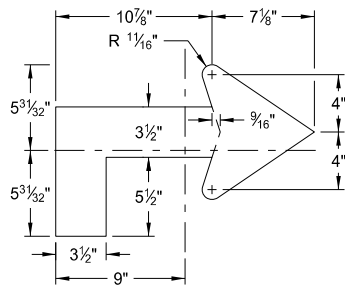
E5-1-48



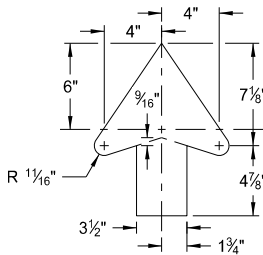
G20-50a-72
G20-52a-72



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



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



M4-9-30
Straight

ARROW DETAILS

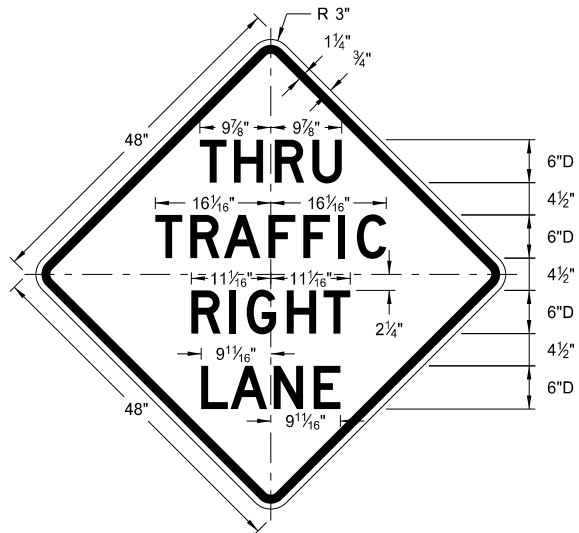
NOTES:
(A) Arrow may be right or left of the legend to indicate construction to the right or left.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Added sign & background color

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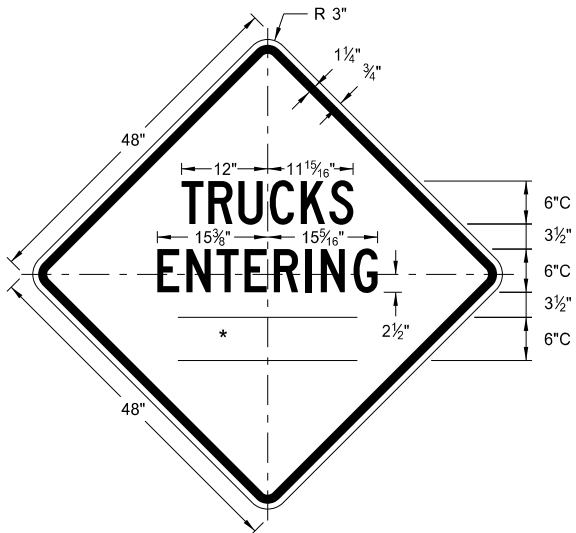
CONSTRUCTION SIGN DETAILS
WARNING SIGNS

D-704-11



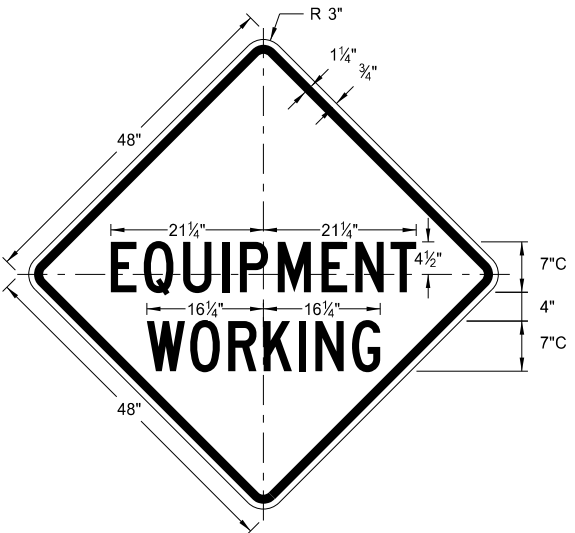
W5-8-48

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Background: orange



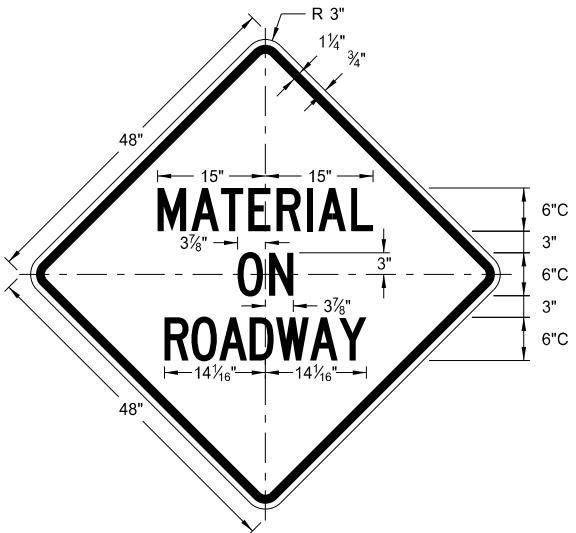
W8-54-48

Legend: black (non-refl)
Background: orange



W20-51-48

Legend: black (non-refl)
Background: orange

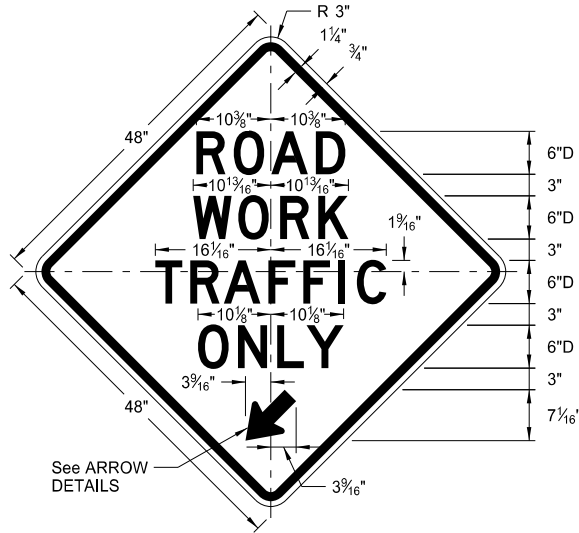


W21-51-48

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Background: orange

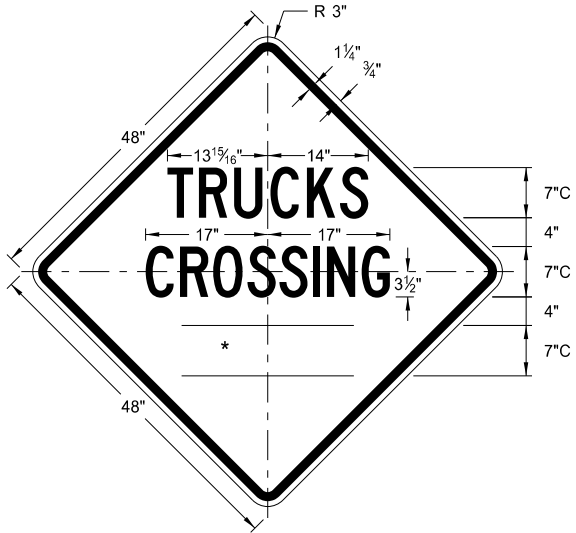
WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
1/2 MILE	Reduce 50%
1 MILE	Standard

* DISTANCE MESSAGES



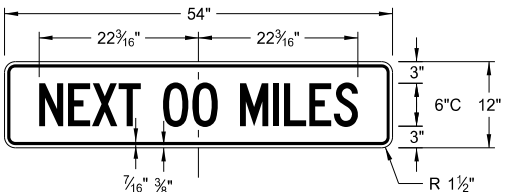
W5-9-48

Legend: black (non-refl)
Background: orange



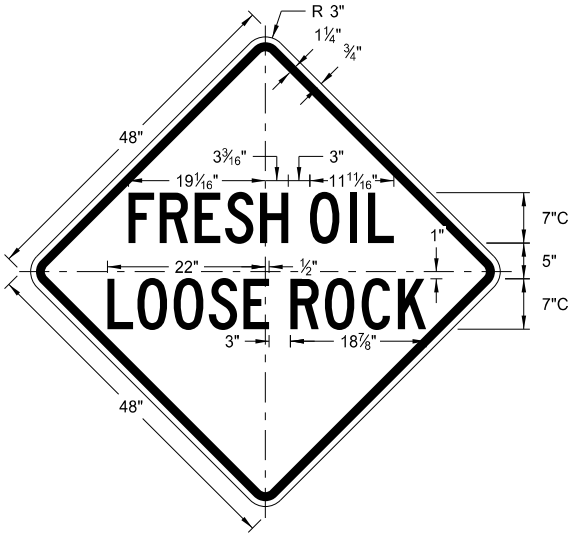
W8-55-48

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Background: orange



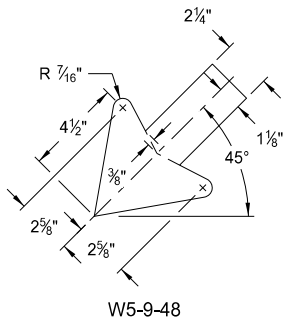
W20-52P-54

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Background: orange



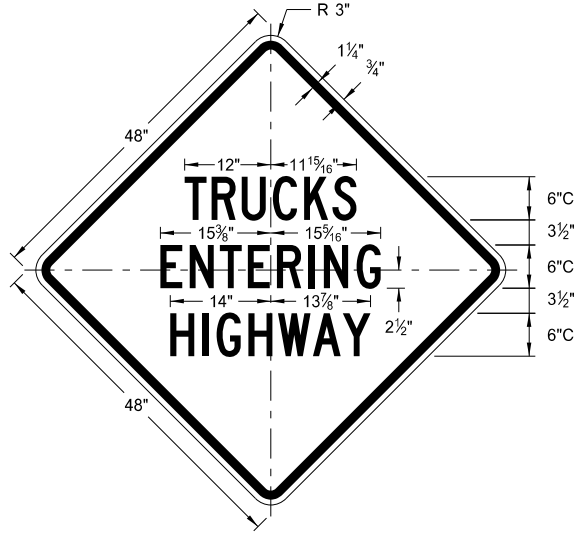
W22-8-48

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Background: orange



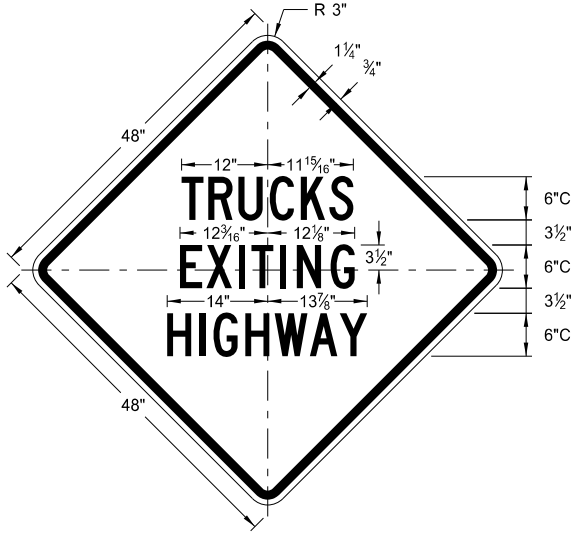
W5-9-48

ARROW DETAILS



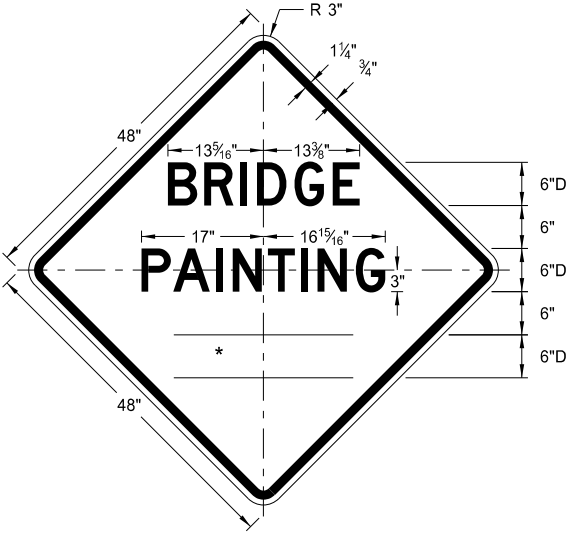
W8-53-48

Legend: black (non-refl)
Background: orange



W8-56-48

Legend: black (non-refl)
Background: orange



W21-50-48

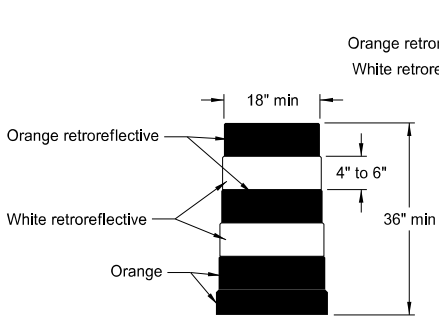
Legend: black (non-refl)
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number

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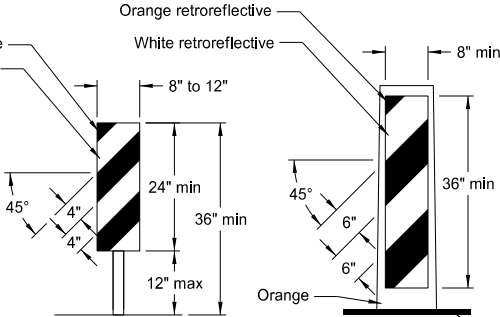
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



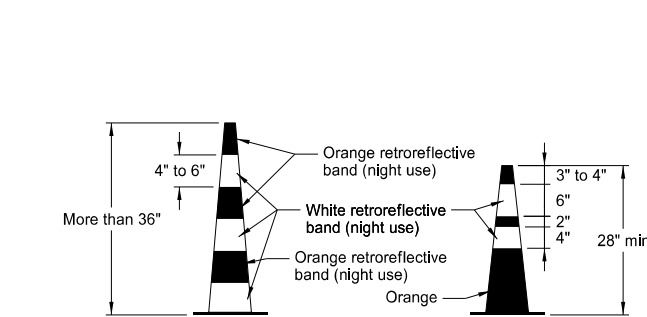
DELINEATOR DRUM

The markings on drums shall be horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide. Each drum shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectorized spaces between the horizontal orange and white stripes shall not exceed 3" wide. Stripes shall not be placed on ribs or indentations in the drum. Drums shall have closed tops that will not allow collection of construction debris or other debris. Ballast shall not be placed on the top of a drum.



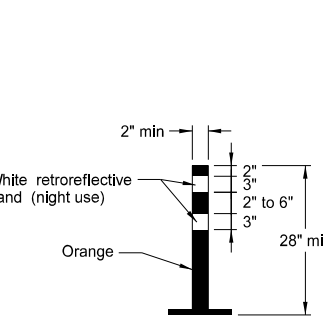
VERTICAL PANEL

Markings for vertical panels shall be alternating orange and white retroreflective stripes, sloping downward in the direction vehicular traffic is to pass. Retroreflective sheeting shall be placed on both sides of panel and shall have 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, a stripe width of 6 inches shall be used.



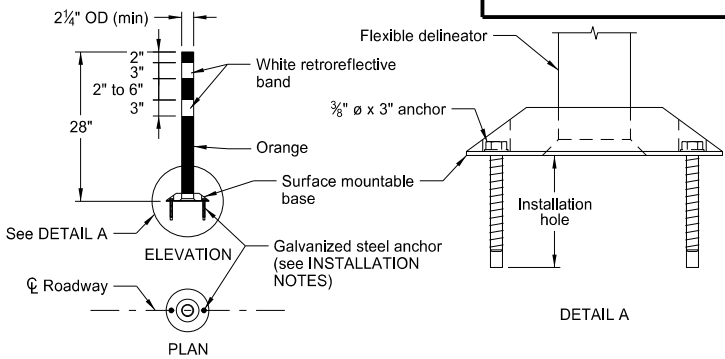
TRAFFIC CONE

Retroreflectorization of cones more than 36" in height shall be provided by alternating orange and white retroreflective stripes. Each cone shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectorized space between the orange and white stripes shall not exceed 3" wide.



TUBULAR MARKER

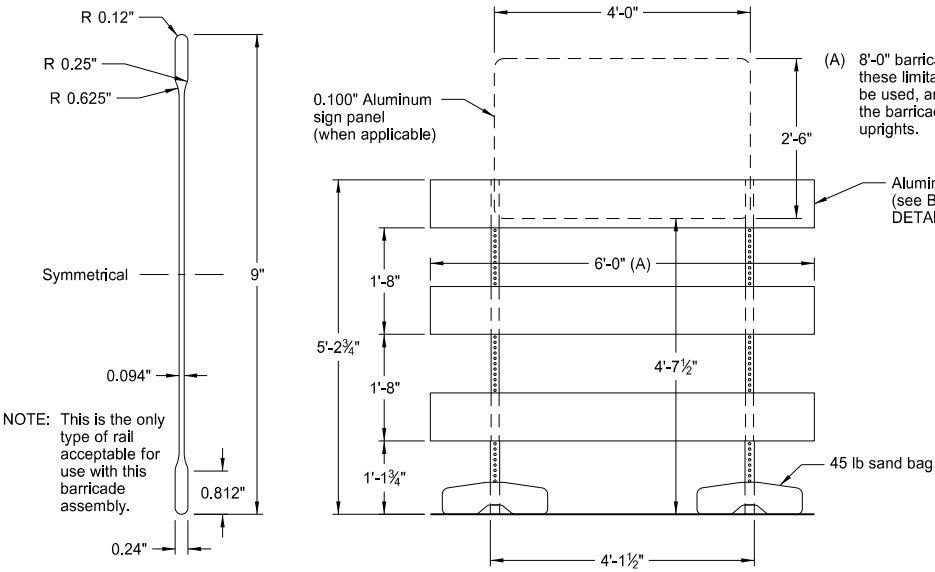
Retroreflectorization of tubular markers more than 42" in height shall be provided by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



FLEXIBLE DELINEATOR

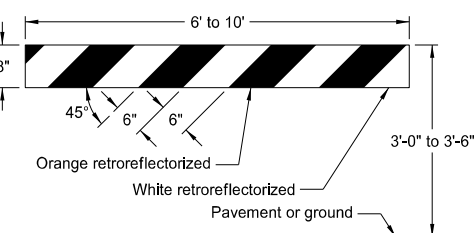
INSTALLATION NOTES:

1. Drill installation holes to diameter and depth as 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, the contractor may use an 8" x 8" butyl pad or hot melt butyl. Butyl shall be removed as close as possible to pavement surface.



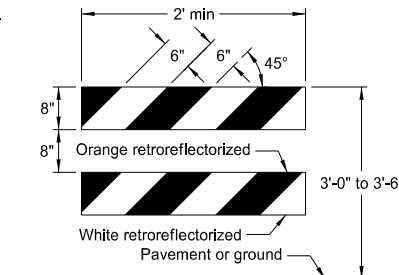
BARRICADE BLADE DETAIL

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



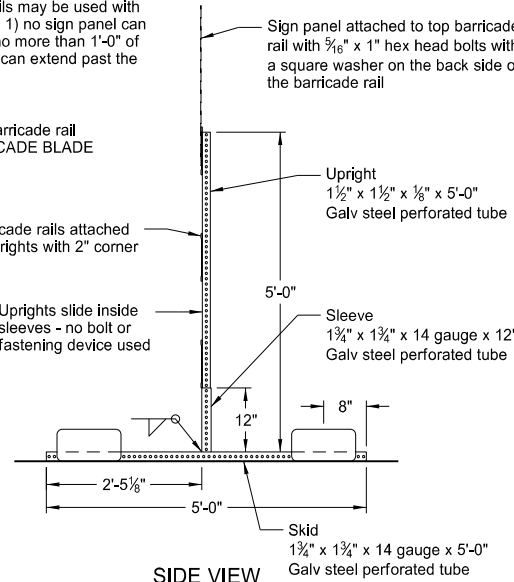
TYPE I BARRICADE

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

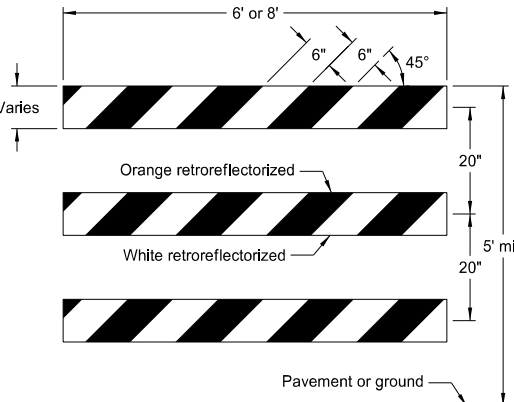


TYPE II BARRICADE

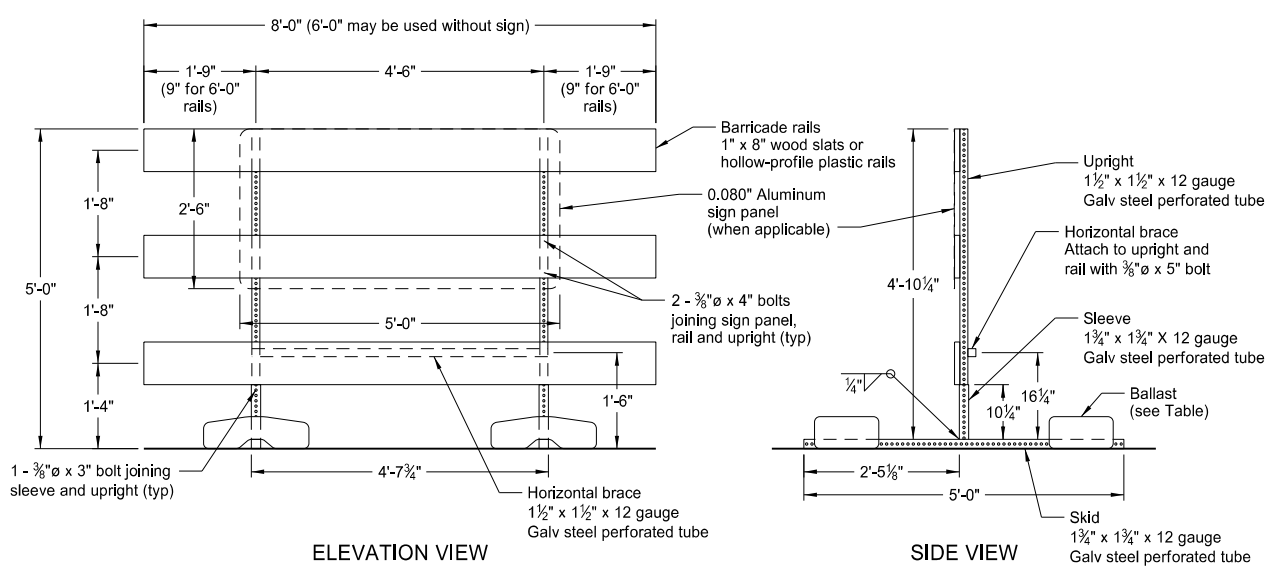
BARRICADE RAIL DETAILS



BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)



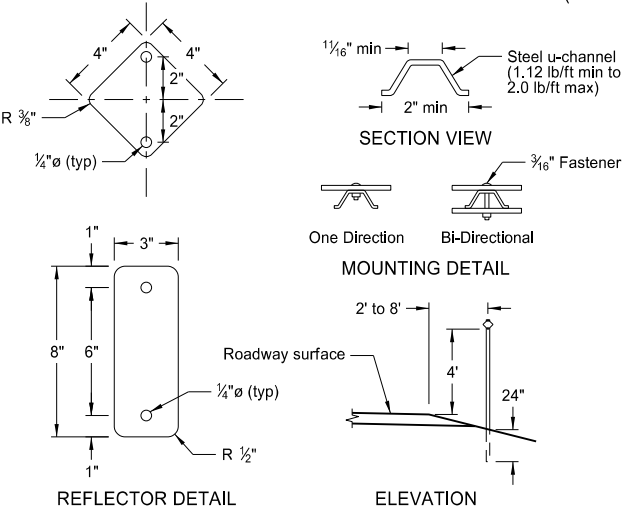
TYPE III BARRICADE



ELEVATION VIEW

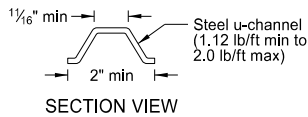
BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

SIDE VIEW

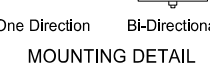


REFLECTOR DETAIL

DELINEATORS



SECTION VIEW



MOUNTING DETAIL

MINIMUM BALLAST (For each side of barricade support)

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

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE

This document was originally issued and sealed by
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CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

NOTES:

1. Sign Supports: Supports shall be galvanized or painted. 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, the minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes are based on a wind speed of 55 MPH.

Signs over 50 square feet should be installed on 2½" x 2½" perforated tube supports as a minimum.

Guy wires shall not be attached to sign supports. Wind beams may be attached to u-posts behind the sign panels.

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

3. Alternate Messages: The signs that have alternate messages may have these alternate messages placed on a reflectorized plate (without a border) and installed and removed as required. (i.e. "Left" and "Right" message on a 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 as stated above.

Large signs having an area exceeding 50 square feet shall have a minimum clearance of 7'-0" from the ground at the post.

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

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

Signs mounted to the portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT Details shall have a maximum surface area of 16 square feet.

MINIMUM BALLAST
(For each side of sign support base)

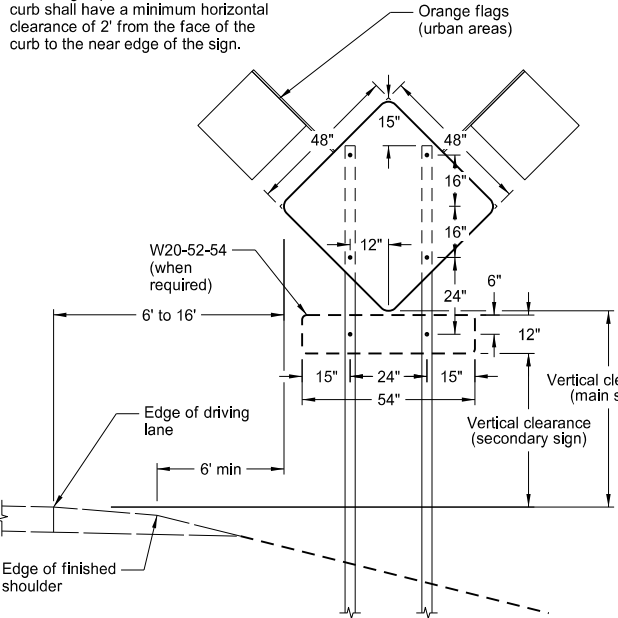
Sign Panel Mounting Height (ft)	Number of 25 lb sandbags for 4' x 4' sign panel
1'	6
5'	8
7'	10

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

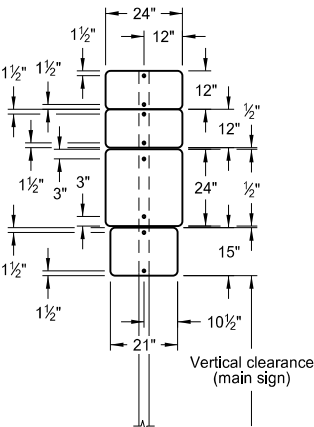
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-4-13	
REVISIONS	
DATE	CHANGE
11-14-13	Revised Note 6.

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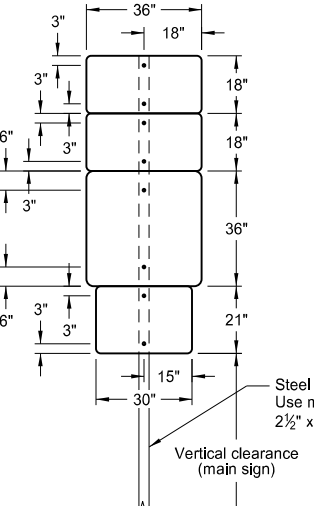
Note: Signs placed in sections with curb shall have a minimum horizontal clearance of 2' from the face of the curb to the near edge of the sign.



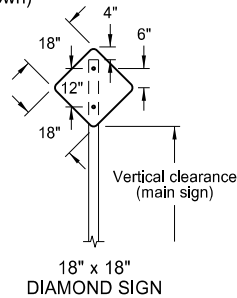
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



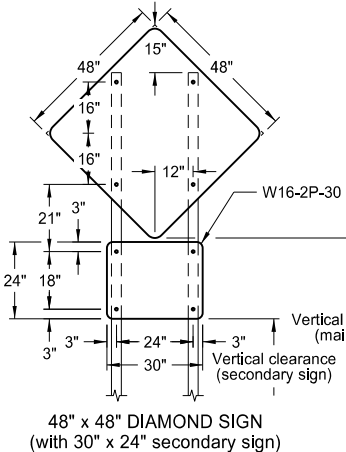
24" x 24" ROUTE MARKER ASSEMBLY



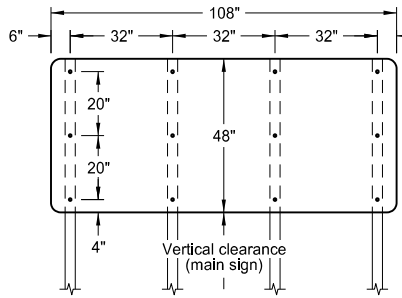
36" x 36" ROUTE MARKER ASSEMBLY



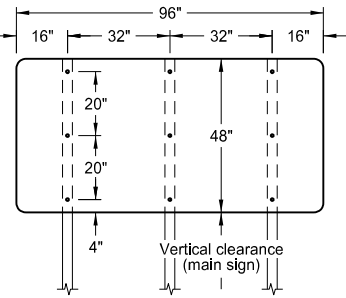
18" x 18" DIAMOND SIGN



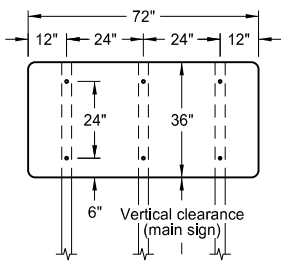
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



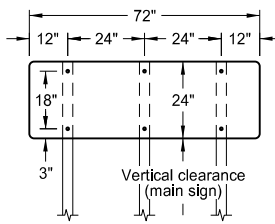
108" x 48" SIGN



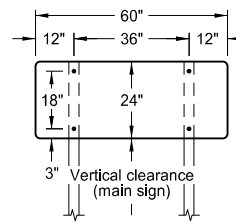
96" x 48" SIGN



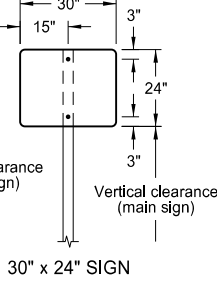
72" x 36" SIGN



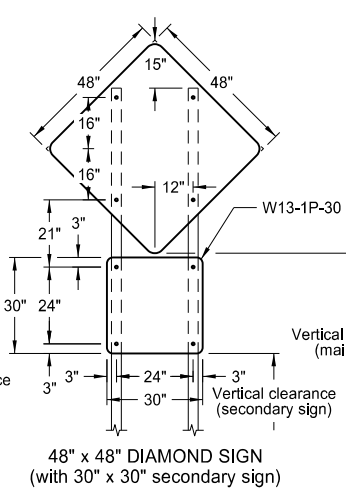
72" x 24" SIGN



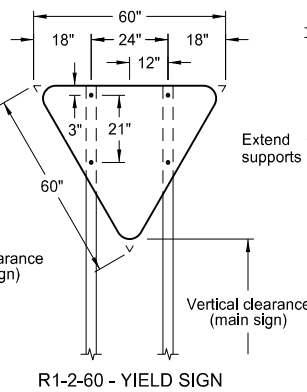
60" x 24" SIGN



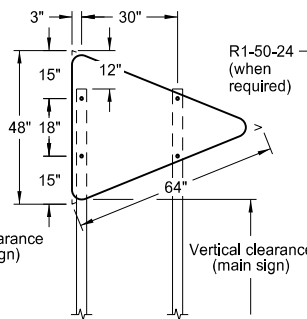
30" x 24" SIGN



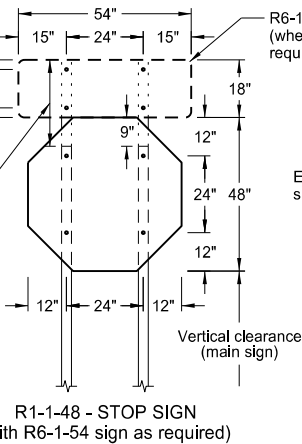
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



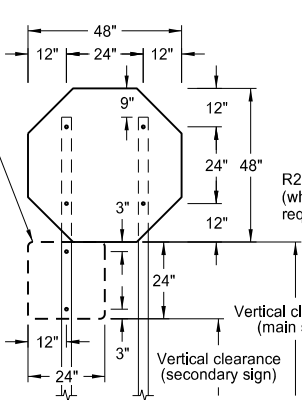
R1-2-60 - YIELD SIGN



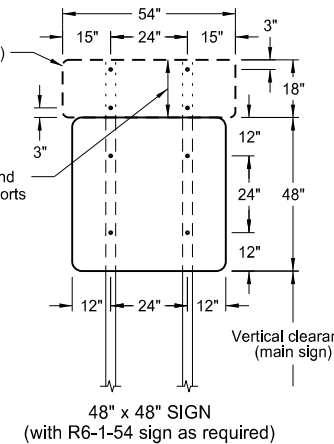
W14-3-64 - PENNANT SIGN



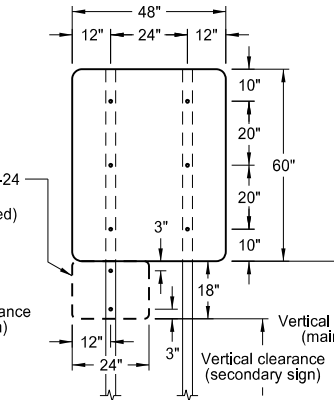
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



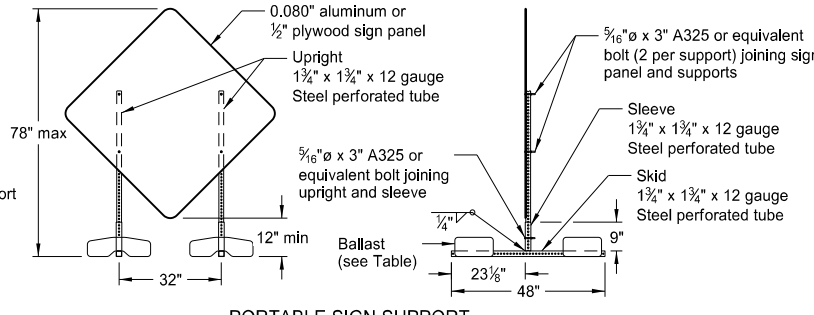
R1-1-48 - STOP SIGN
(with R1-50-24 sign as required)



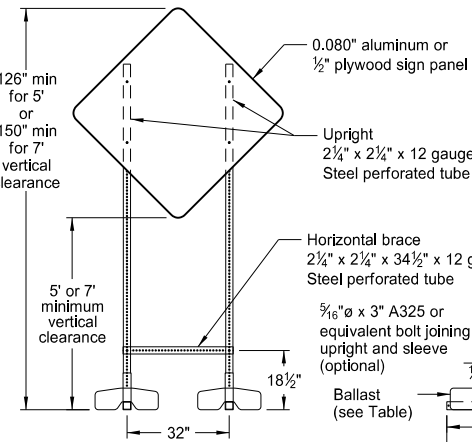
48" x 48" SIGN
(with R6-1-54 sign as required)



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



PORTABLE SIGN SUPPORT
LOW-MOUNTING HEIGHT



PORTABLE SIGN SUPPORT
HIGH-MOUNTING HEIGHT

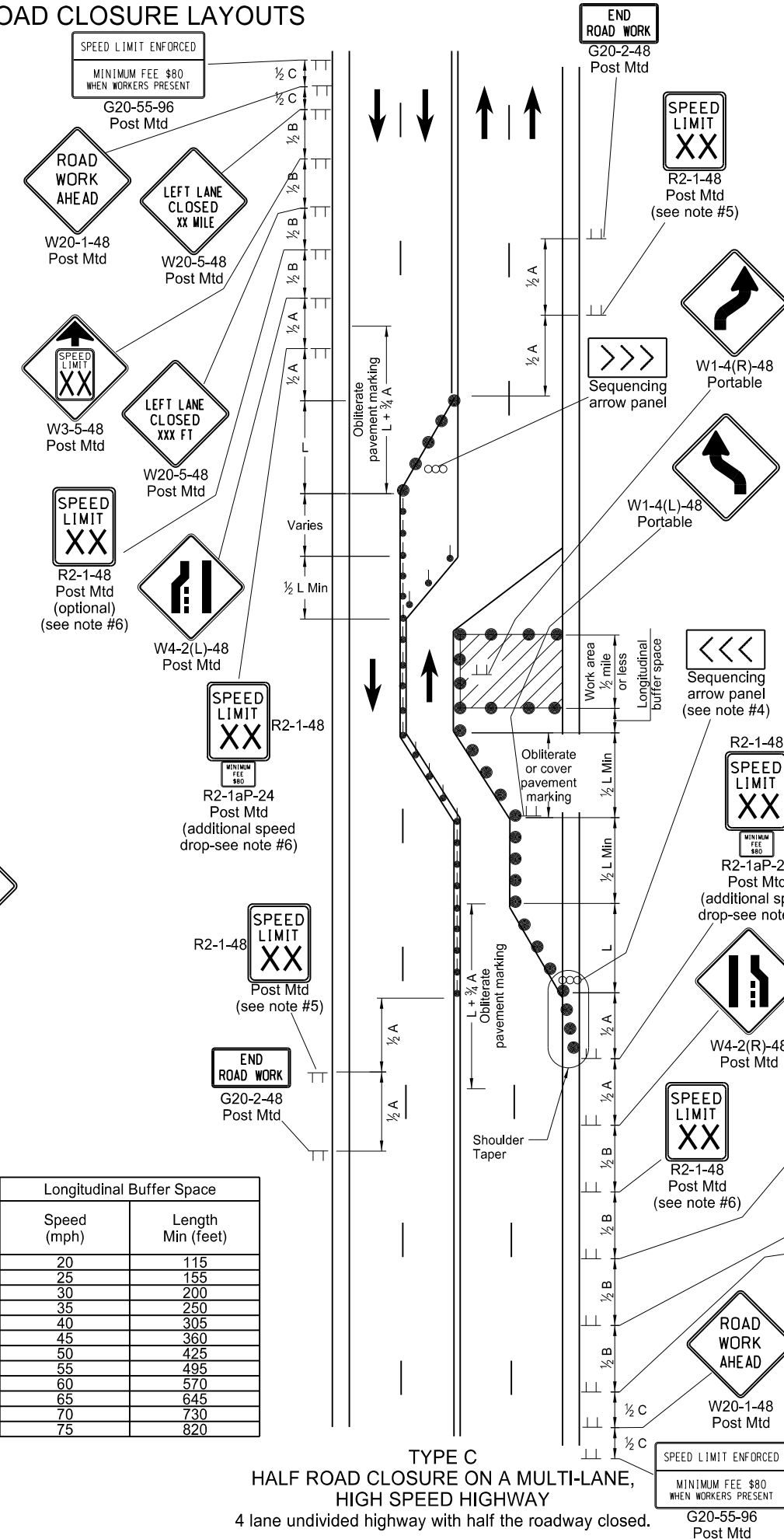
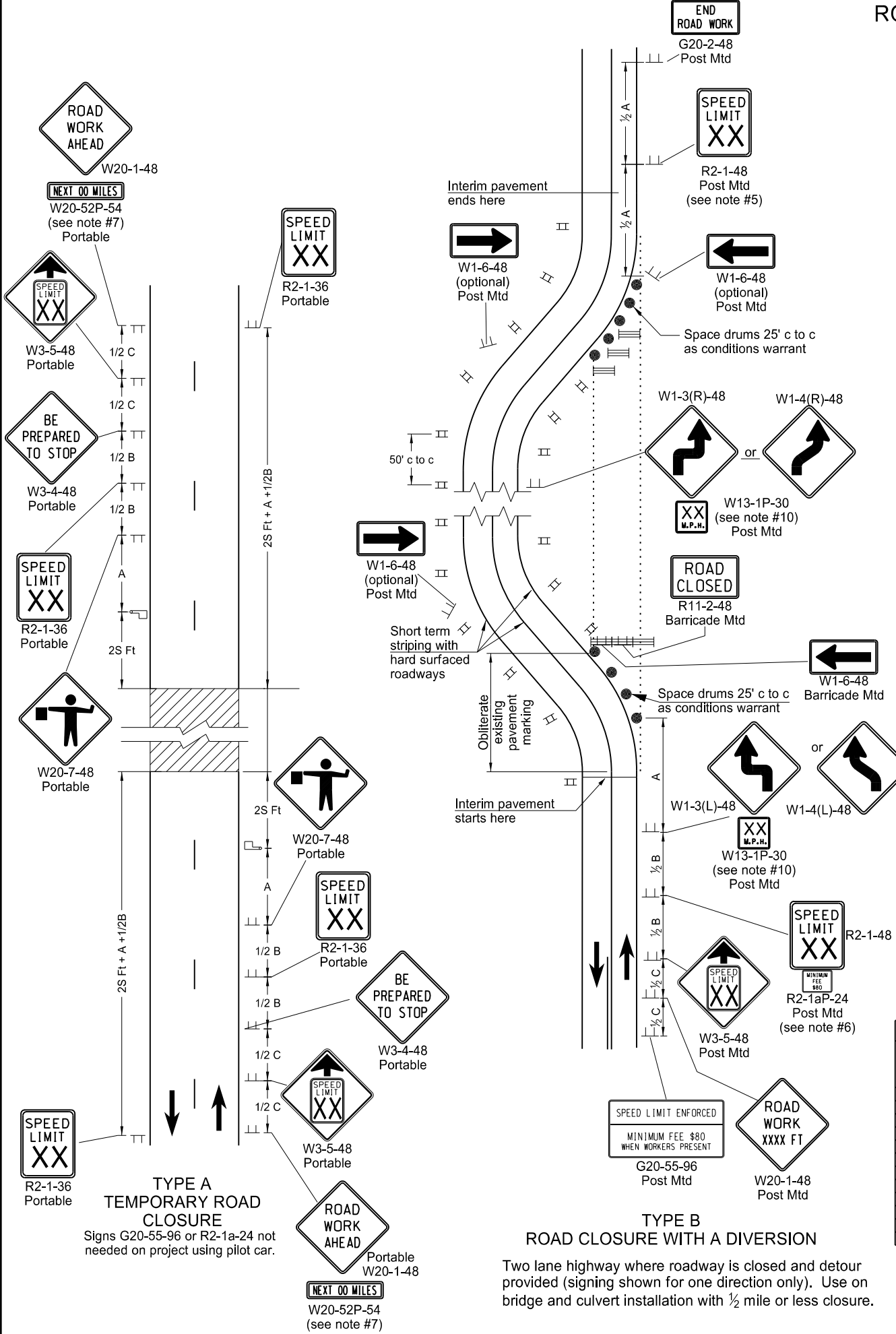
ROAD CLOSURE LAYOUTS

- 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 $W \times S^2/60$ 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 $\frac{1}{2}$ B.
7. Use when work area is 1 mile or longer.
8. 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.
9. Cover existing speed limit signs within reduced speed zones.
10. Where necessary, engineer will determine safe speed.
11. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
12. Sign G20-55-96 is not required if this standard is part of other traffic control, or the work is less than 15 days.
13. 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

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

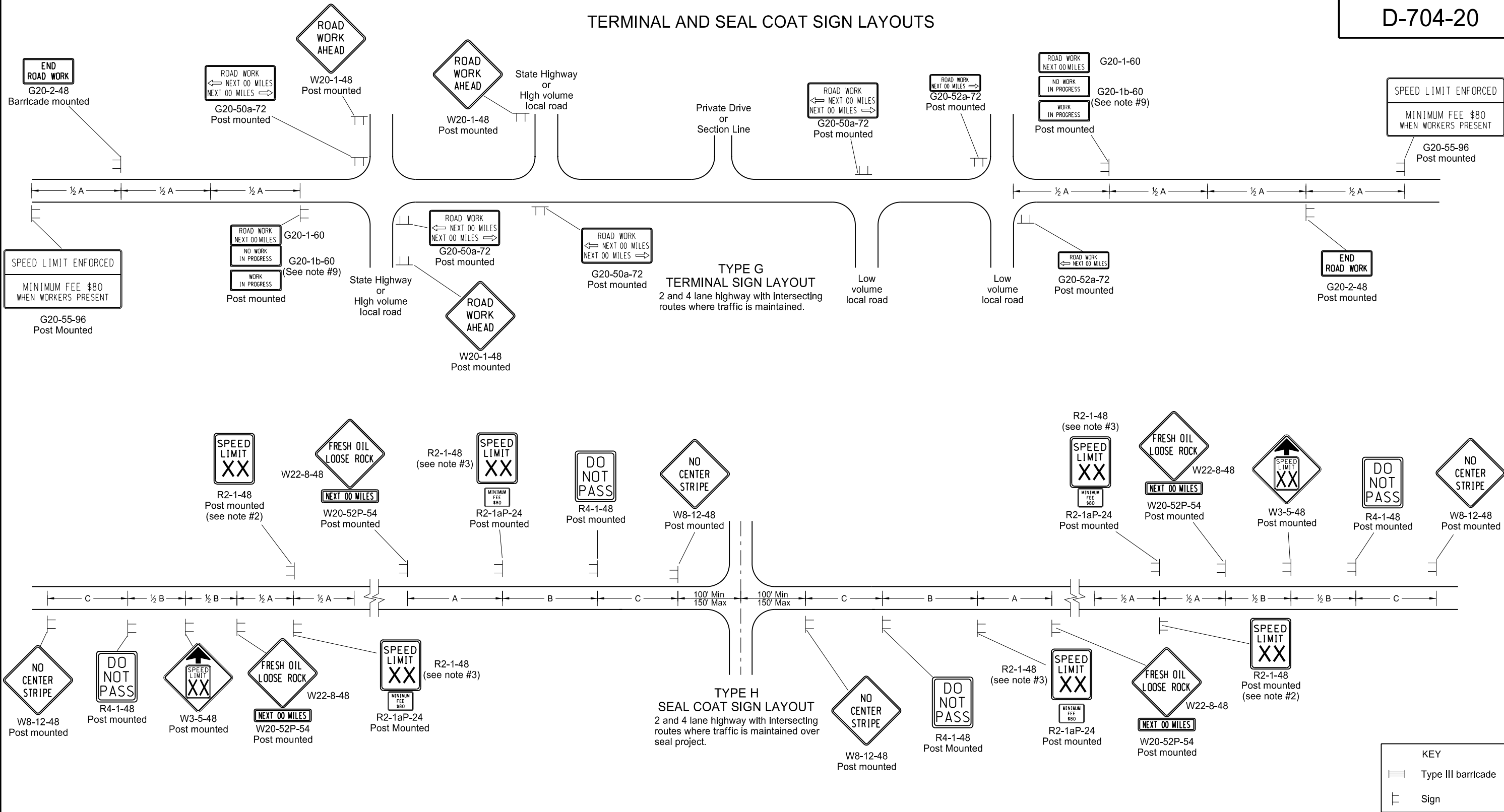


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated notes & Speed Limit signs

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TERMINAL AND SEAL COAT SIGN LAYOUTS

D-704-20



- Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
- Determine the exact speed limit in the field, based on location and conditions.
- Determine the reduced speed limit based on the in place speed limit before construction. Where speed limit reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 MPH.) Place the second speed limit sign at 1/2 B.
- 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.
- Cover existing speed limit signs within a reduced speed zone.
- On seal coat projects, place signs R2-1-48, R2-1aP-24, R4-1-48, W22-8-48 and W20-52P-54 after all important intersections and at five mile intervals. Place sign W8-12-48 after all important intersections and at 2 mile intervals until short term center line pavement marking is placed.
- As an option, use portable sign supports in lieu of post mounted signs in accordance with the NDDOT Standard Specifications.
- Cover or remove speed limit signs from layout Type H when loose aggregate is removed.
- Install sign G20-1b-60 when work is suspended for winter.
- Use other traffic control layouts in immediate work areas. Place sign R2-1aP-24 below speed limit signs in reduced speed limit work areas.
- Sign G20-55-96 is not required if work is less than 15 days.
- Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

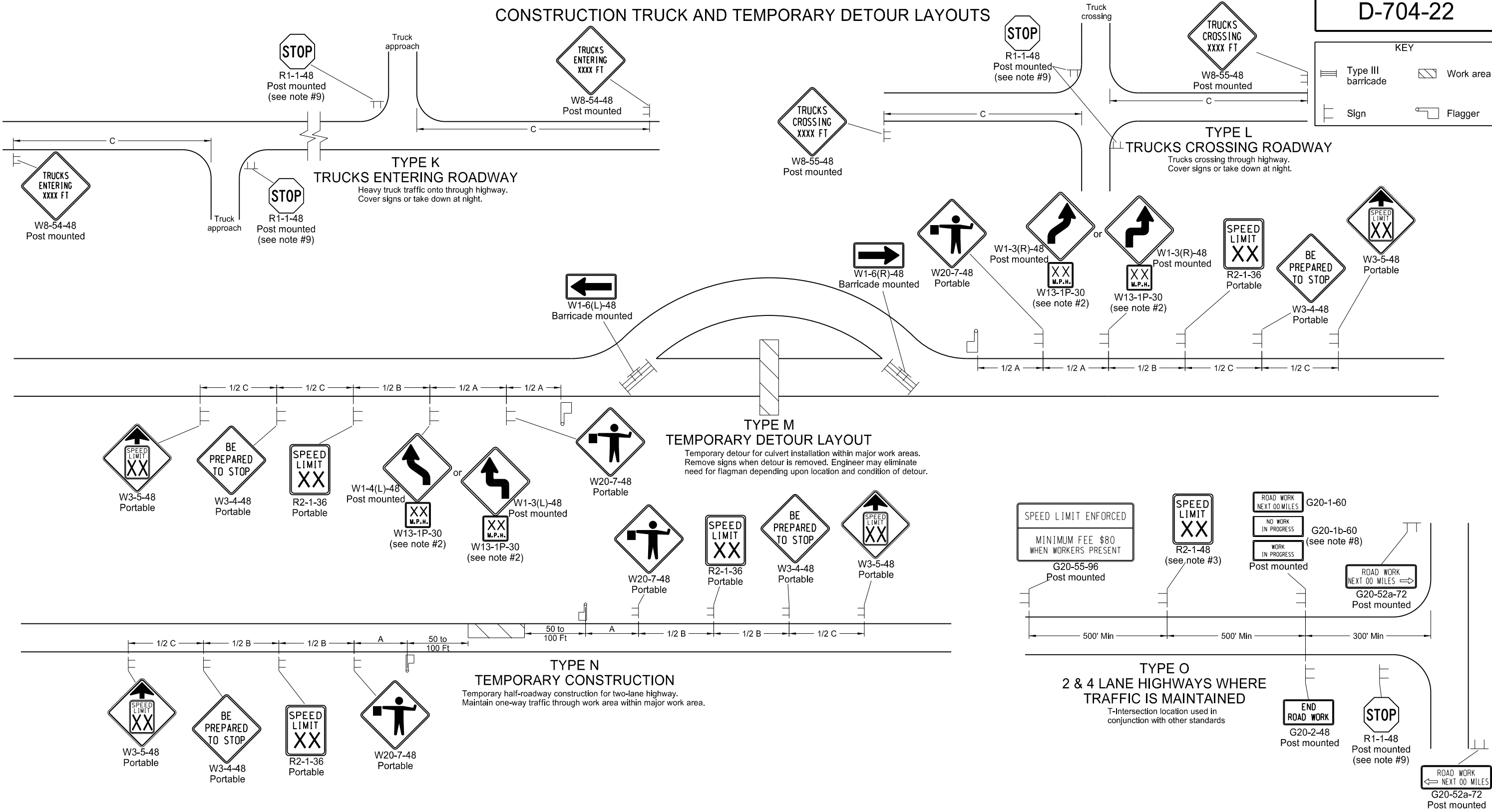
ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway 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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated notes & sign numbers

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CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

D-704-22



Notes

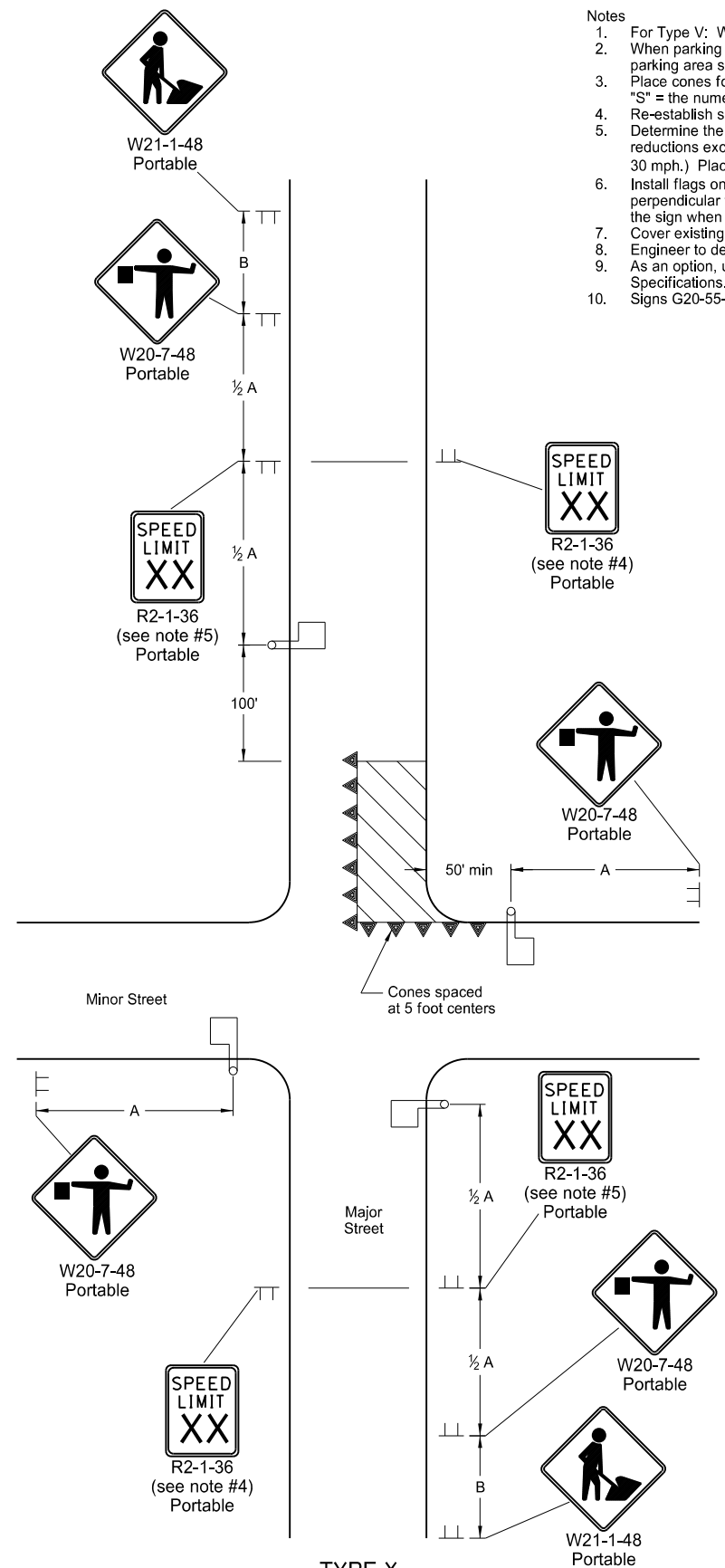
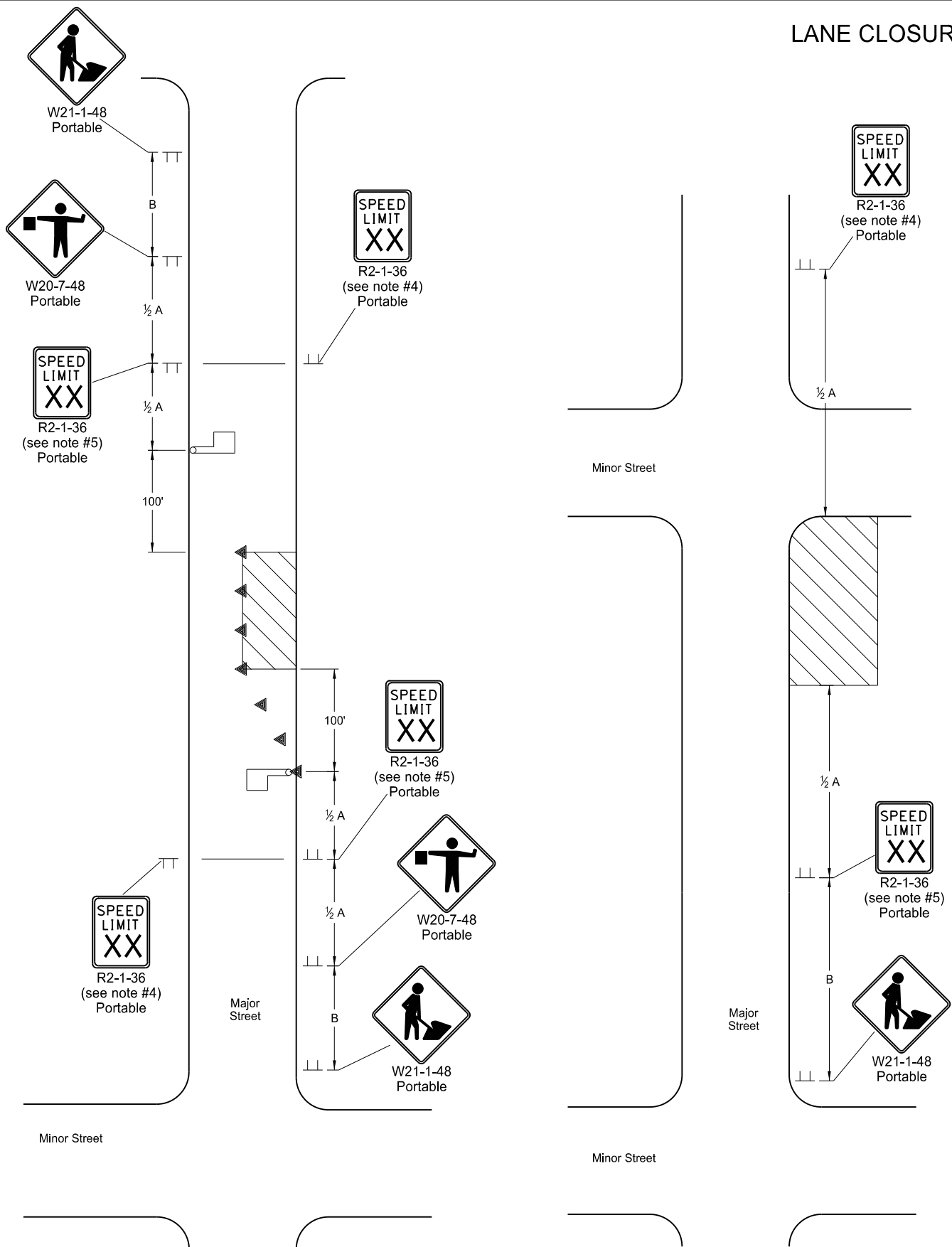
- Place barricades on a moveable assemblies and signs on portable assemblies when located on roadway.
- Where necessary, safe speed to be determined by the Engineer.
- Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at 1/2 B.
- 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.
- Cover existing speed limit signs within a reduced speed zone.
- Covered (when approved by engineer) or obliterated pavement marking measured as Obliteration of Pavement Marking.
- As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
- Install sign G20-1b-60 when work is suspended for winter.
- If existing stop sign is in place, a 48" stop sign is not required.
- Sign G20-55-96 is not required if layout is part of other traffic control or if work is less than 15 days.
- 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		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Update notes & sign numbers

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LANE CLOSURES ON URBAN STREETS LAYOUTS



- 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 1/2 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 Specifications.
 - 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

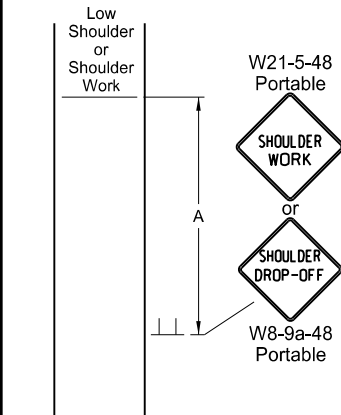
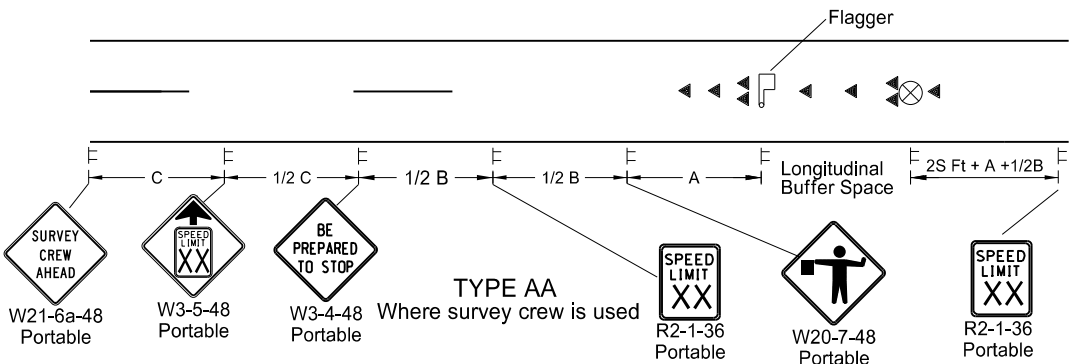
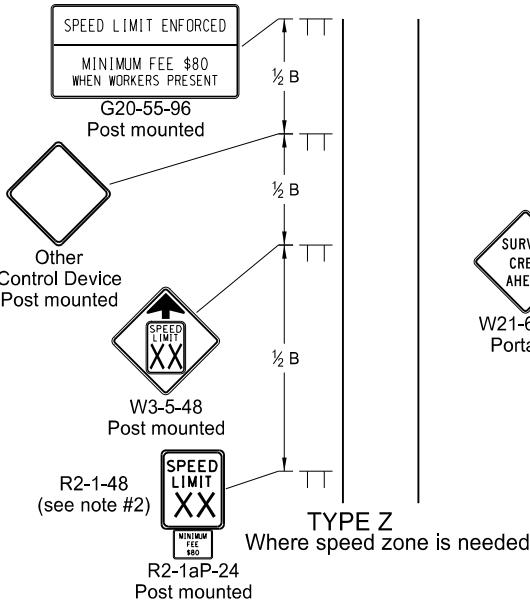
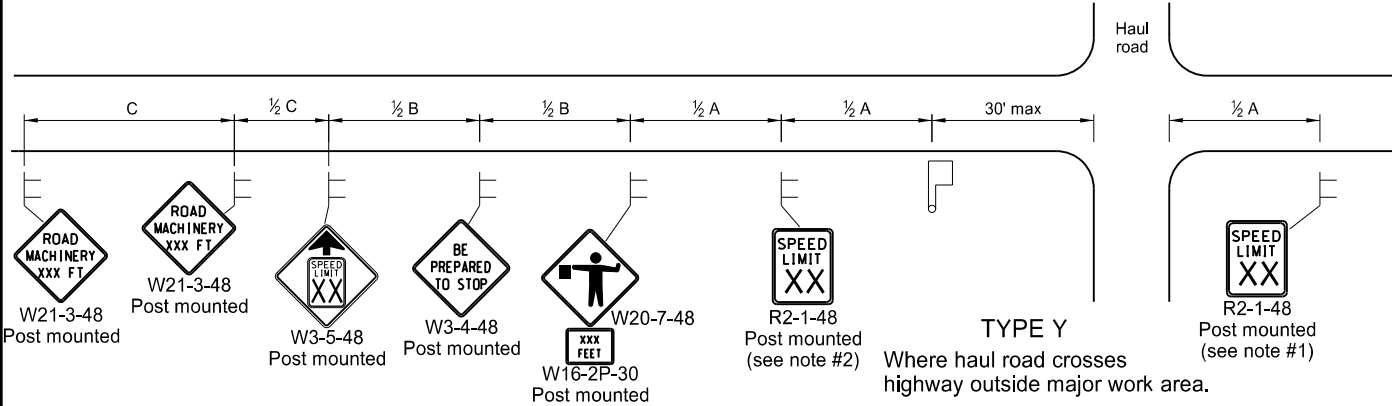
KEY	
	Sign
	Cones
	Work area
	Flagger

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated notes & removed signs

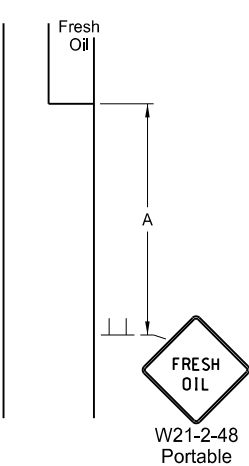
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of Transportation

MISCELLANEOUS SIGN LAYOUTS

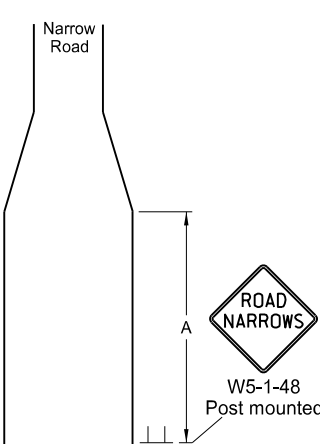
D-704-26



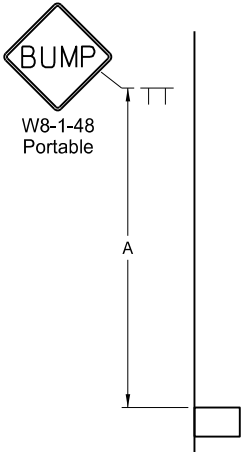
TYPE BB
Within major work area
where sign conditions exist



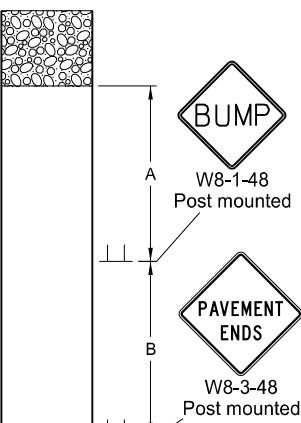
TYPE CC
Where sign conditions exist



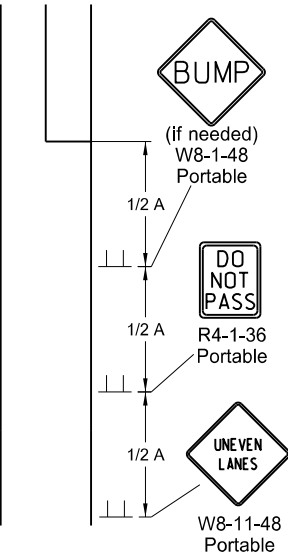
TYPE DD
Where sign conditions exist



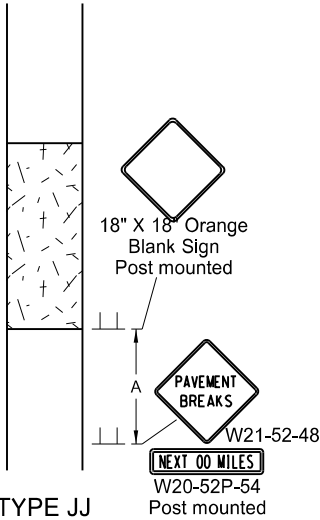
TYPE EE
Where sign conditions exist



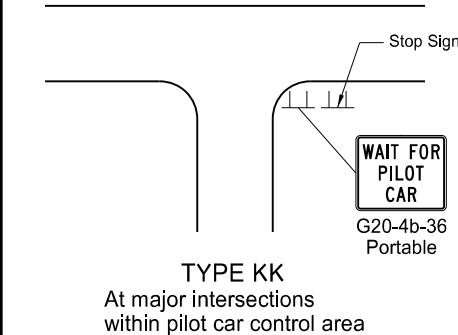
TYPE FF
Where sign conditions exist



TYPE GG
Where elevation difference
exists between lanes



TYPE JJ
For break in pavement.
Install signs when conditions exist
and remove when not applicable.



TYPE KK
At major intersections
within pilot car control area

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

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 the anticipated operating speed in mph.

KEY

Sign Flagger Cones

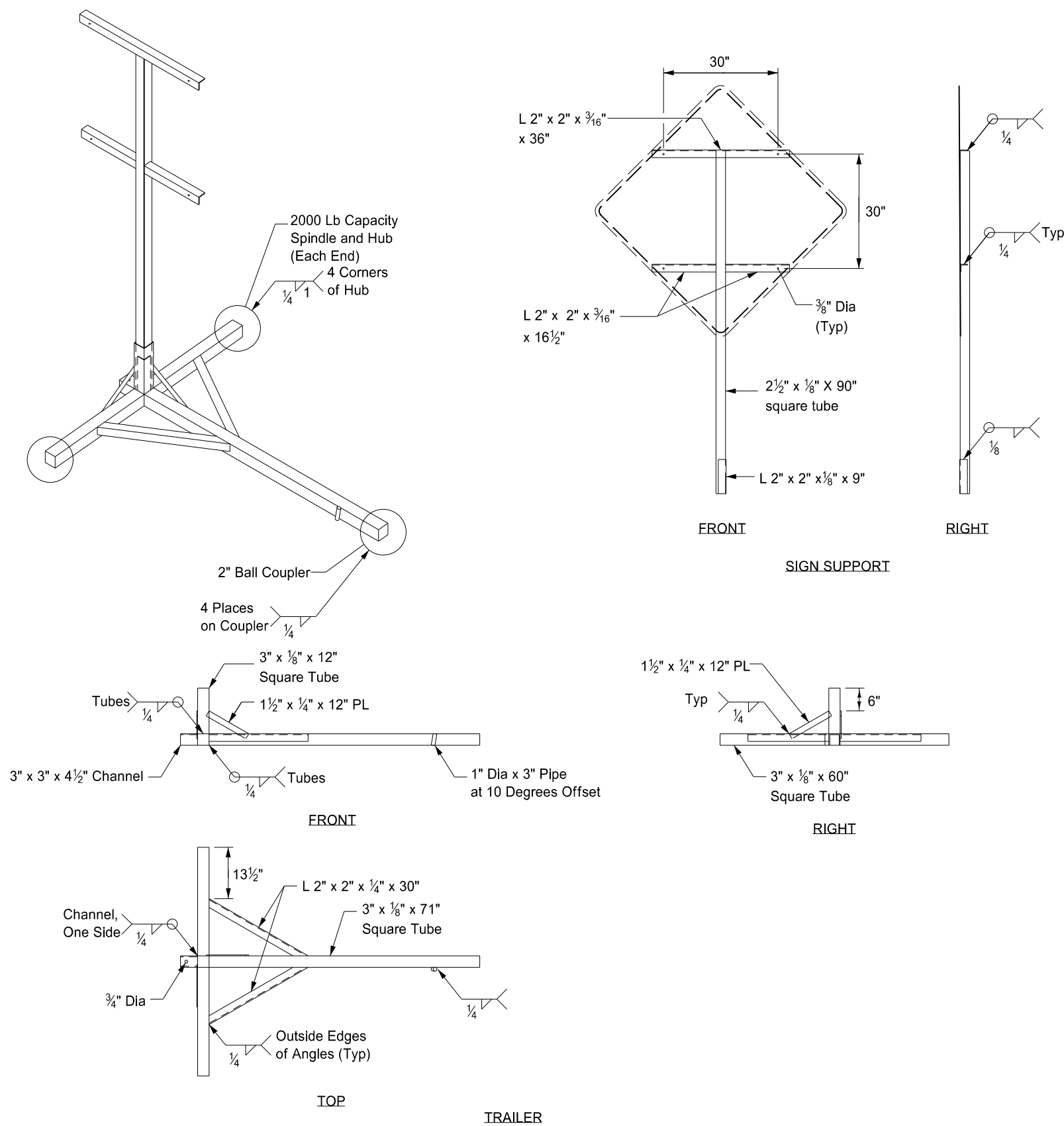
S = Numerical value of speed limit or 85th percentile.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Added speed limit signs. Updated notes & sign numbers

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PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50



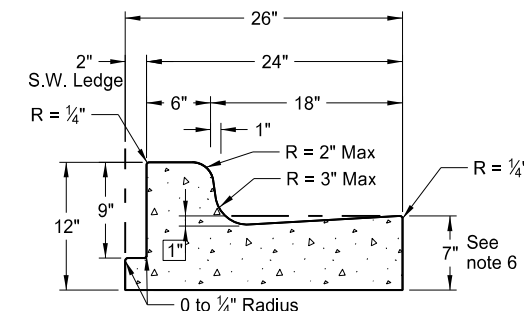
Notes:

- 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.

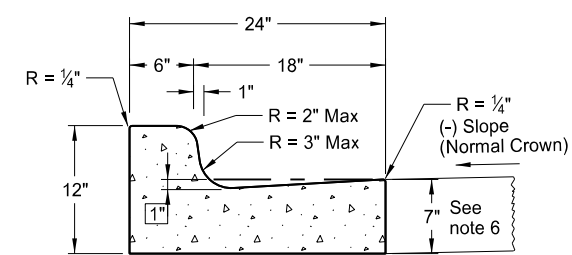
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE

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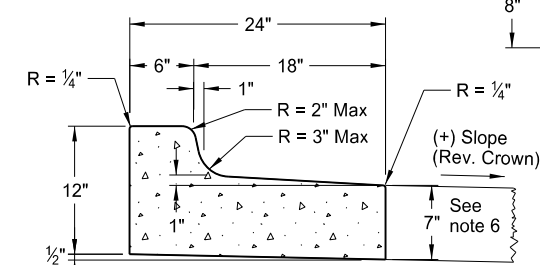
Curb & Gutter and Valley Gutter



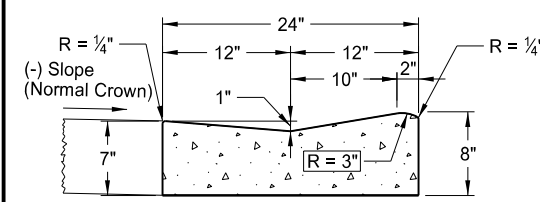
Curb & Gutter Type 1 (Sec. A & B)
Adjacent to Concrete Sidewalk,
Median, or Parking Lot.
(Sec. A shown. See Sec B for
additional details.)



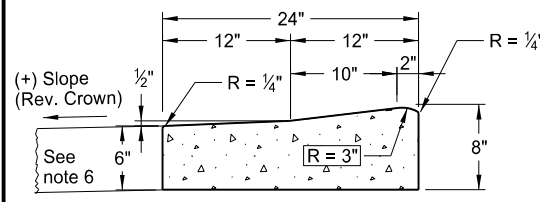
Curb & Gutter Type 1 (Sec. A)



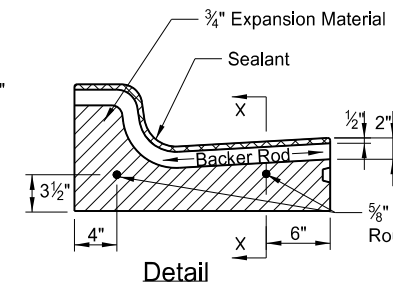
Curb & Gutter Type 1 (Sec. B)



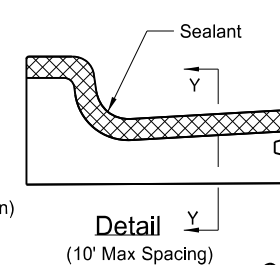
Mountable Curb & Gutter Type 1 (Sec. A)



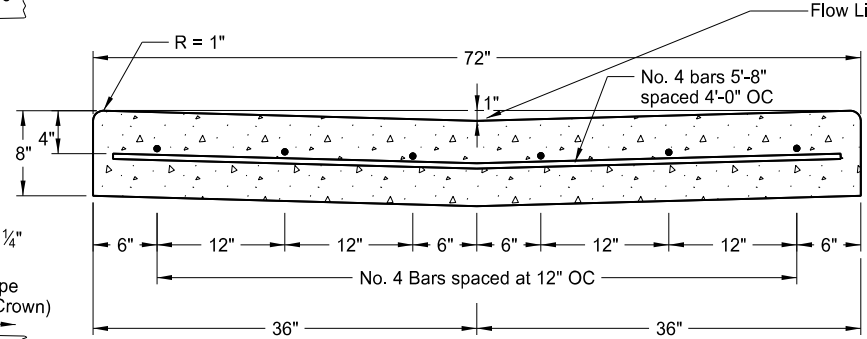
Mountable Curb & Gutter Type 1 (Sec. B)



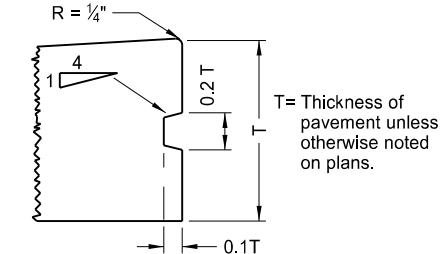
Isolation Joint



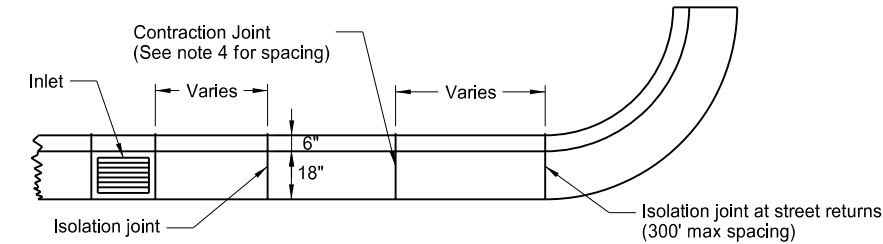
Contraction Joint



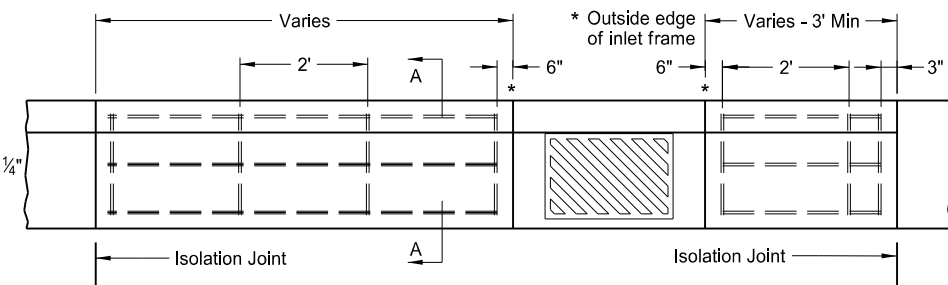
72" Concrete Valley Gutter Detail



Keyway Detail for Curb & Gutter
(To be used with PCC Pavement and Drives)

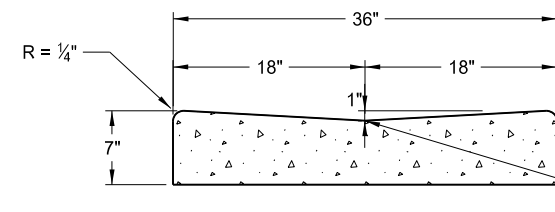


Joint Location Detail

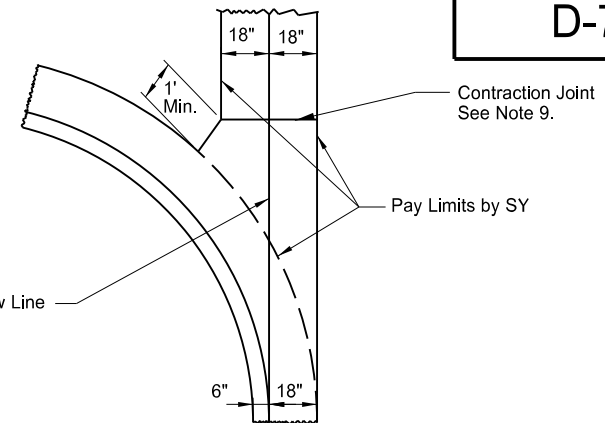


Curb & Gutter Reinforcing at Inlets

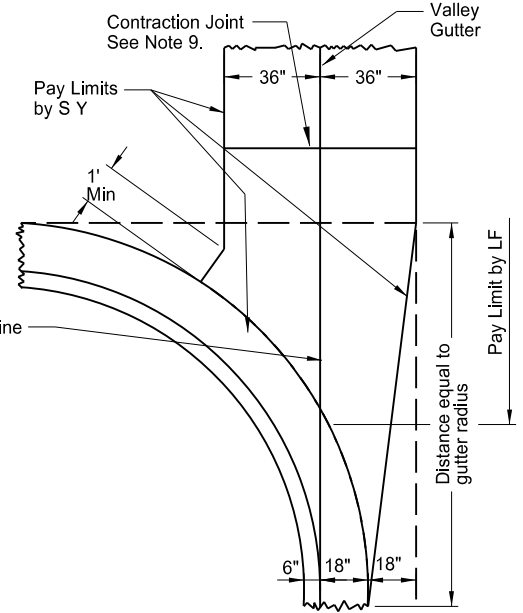
NOTE: All bars shall be #4 deformed reinforcing bars. Splices will not be permitted. Reinforcing bars at inlet locations will not be paid for separately, but shall be included in the price bid for "Curb and Gutter - Type 1." This includes inlets located on radii. The reinforcement shall be extended to the second joint (rebar placed through the first joint) in cases where the 3' min. panel length cannot be obtained.



36" Concrete Valley Gutter Detail



36" Concrete Valley Gutter Plan



72" Concrete Valley Gutter Plan

NOTES:

1. Curb and Gutter Type 1 (Sec. A & B) to be used. Section "A" to be used with (-) pavement slopes and section "B" to be used with (+) pavement slopes.
2. Contraction Joints: Tool the Curb & Gutter 2" as shown on the contraction joint details.
3. Isolation Joints: Isolation joint material shall be 3/4" preformed expansion joint filler conforming to the standard specifications. The opening for the backer rod and joint sealant shall be formed by a pre-cut piece of wood or other material approved by the engineer. Dowel supports are not required on the second pour at a cold joint, plastic or metal caps and greased dowels shall be installed in the cold joint for the second pour.
4. Joint Spacing: For hot bituminous pavements the joint spacing for the curb and gutter shall be 10' max. with the panels on each side of the inlets. For concrete pavements the joint spacing for the curb and gutter shall match the pavement joint on PCC Pavements of approximately 15' spacing.
5. Joint sealing: All contraction and isolation joints shall be sealed as shown in the details. The joint sealant for contraction joints shall conform to section 826.02B. The sealant for expansion joints shall be as specified in note 3 above. The sealant shall be tooled and installed in accordance with the manufacturer's recommendations.
6. Depth of Face of Gutter: For hot bituminous pavement the depth of gutter shall be 7" as shown. For PCC pavements, the Contractor has the option to match the depth of gutter to the depth of the adjacent PCC pavement or to construct a 7" depth as shown.
7. When the curb and gutter abuts PCC pavement, it shall be tied to the PCC pavement. The tie bar shall consist of a No. 3 bar, 1'-6" in length spaced 4' center to center.
8. On street returns and other locations where the new curb and gutter ends and does not abut existing curb and gutter, the end two (2) feet of the curb shall be tapered from 6" in height to 0". A 1/2" premolded isolation joint which is full depth and the same shape as the curb and gutter shall be installed just ahead of the taper. An 18" tie bar shall be installed across the joint.
9. Valley Gutter Joints: Contraction joints are required at approx. 10' intervals. The contraction joints shall be 1/8" min. to 3/8" max. in width. The joints shall be formed by sawing or scoring to a minimum depth of 2". The joint sealant shall be a hot poured elastic type joint sealer in accordance with Section 826.02A.2 of the Standard Specifications. The joint and sealant shall be included in the price bid for Valley Gutter.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-7-2013	
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DATE	CHANGE

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CONCRETE DRIVEWAY - URBAN

D-750-1

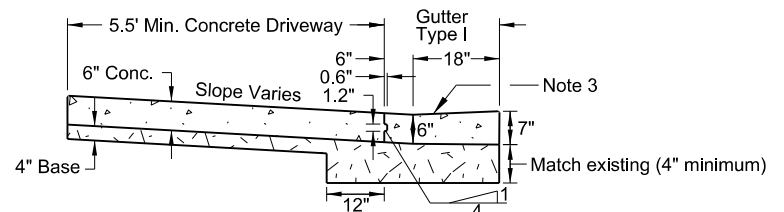
NOTES:

- 1. See Standard D-748-1 for curb and gutter isolation joint detail. On PCC roadways, the curb and gutter joints should match those of the pavement as much as practical.
- 2. Joint Spacing: 1 Center contraction joint to be used on all driveways 20' width or less, 2 center contraction joints for driveways > 20' to 30' width, and 3 center contraction joints for driveways greater than 30' width.

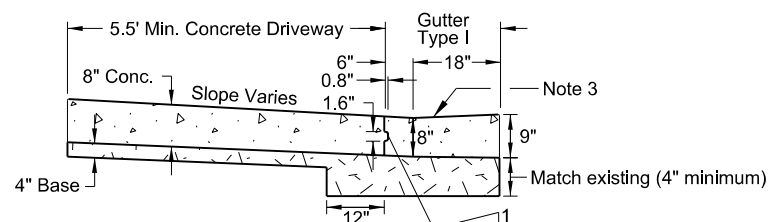
The contraction joints may be sawed or a grooved joint, and shall be a minimum of 1/3 the depth of the concrete.
- Isolatin joints should also be used between seperately poured concretes, or between old and new concrete.
- All joints shall be sealed with hot pour bituminous filler or low modulus silicone. The sealant shall be installed and tooled in accordance with the manufacturer's recommendations.
- All costs for labor, equipment, and material necessary to construct and seal joints shall be included in the price bid for the driveway.
- 3. Gutter-Type 1 shall be paid for at the unit price bid for "Curb and Gutter-Type 1".
- 4. 6" Driveway to be used unless otherwise specified.
- 5. 4" base material shall be placed under the concrete driveway. All labor and materials necessary to place the base material shall be included in the price bid for Salvage Base Course or Aggregate Base Course CL 5.
- 6. Sidewalk that falls behind a driveway shall be constructed to the same thickness as the driveway and shall be paid for as driveway concrete.



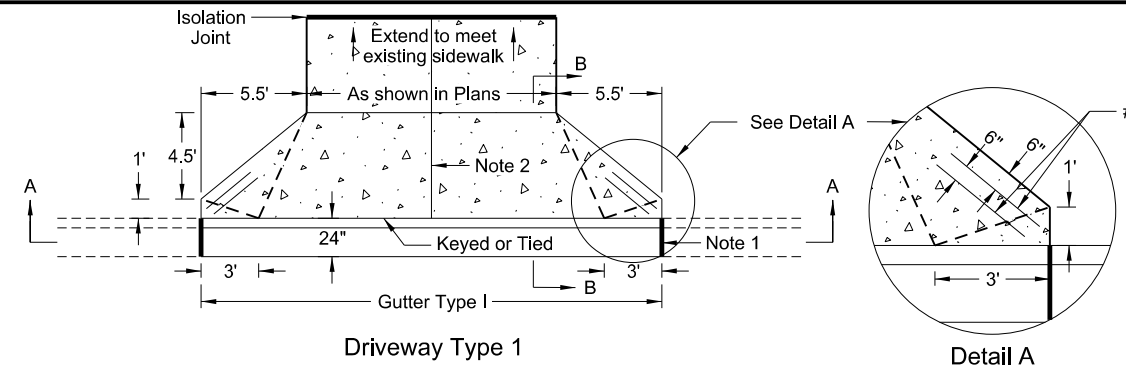
Section A-A



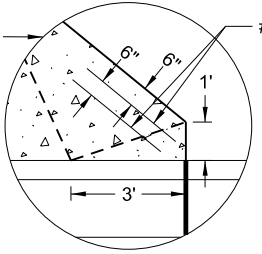
6" Section B-B



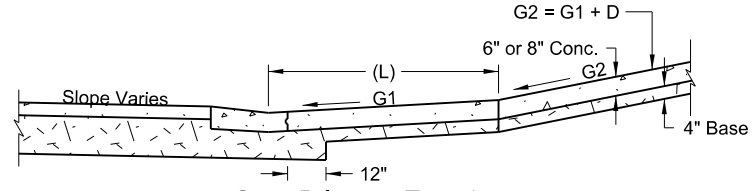
8" Section B-B



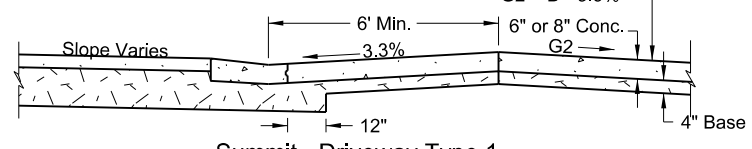
Driveway Type 1



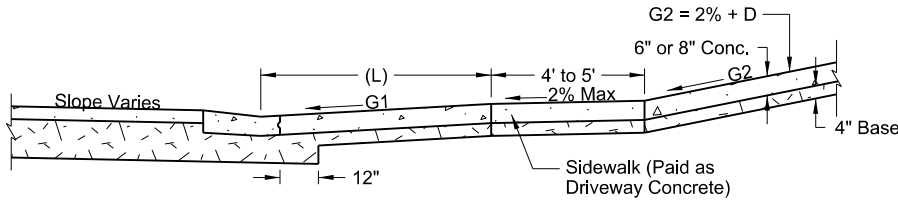
Detail A



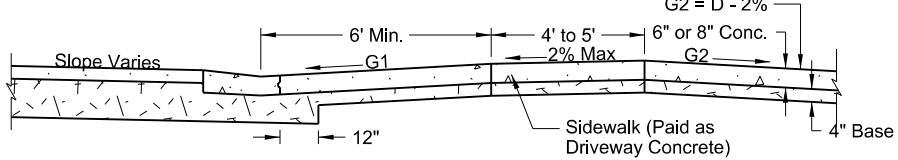
Sag - Driveway Type 1



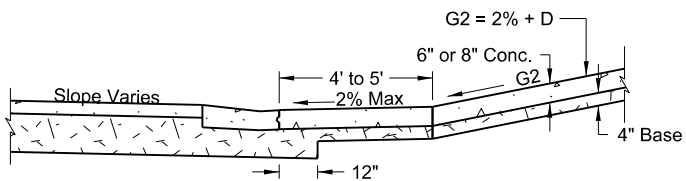
Summit - Driveway Type 1



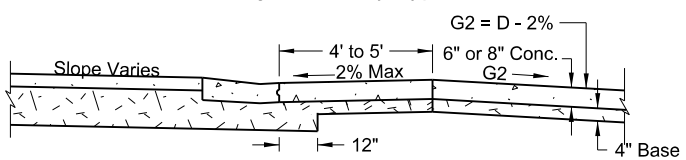
Sag - Driveway Types 2A & 2B



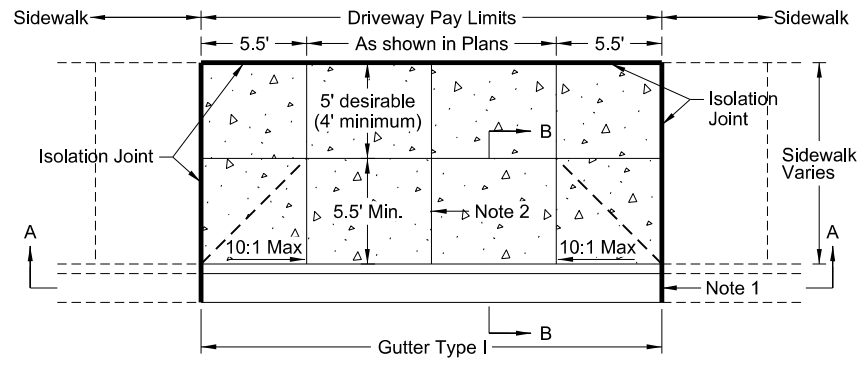
Summit - Driveway Types 2A & 2B



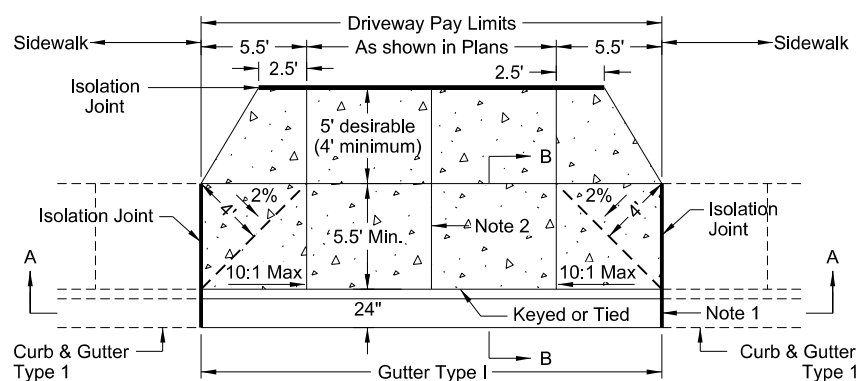
Sag - Driveway Type 3



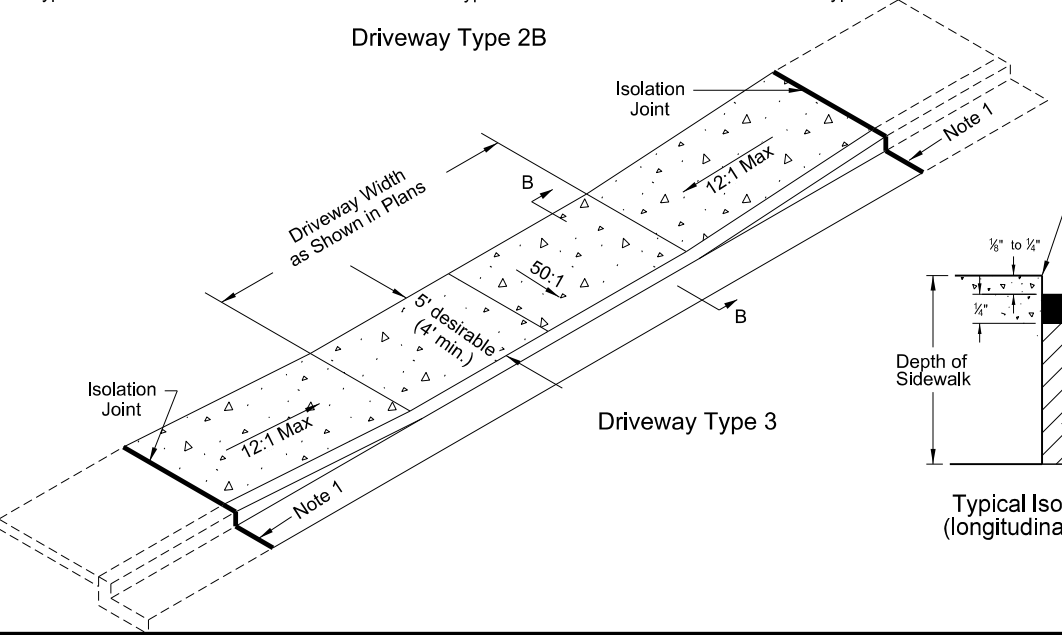
Summit - Driveway Type 3



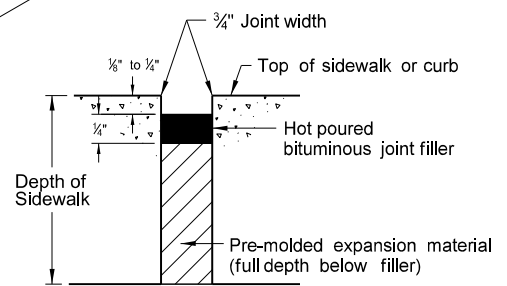
Driveway Type 2A



Driveway Type 2B



Driveway Type 3



Typical Isolation Joint Seal (longitudinal and transverse)

Driveway ADT	Grade G1		Dimension (L) ft.		Grade Changes (D)	
	Desirable	Maximum	Desirable	Maximum	Desirable	Maximum
(0-500)	5%	12% or controlled by vehicle clearance	12	6	6%	15% or controlled by vehicle clearance
(500-1500)	3%	8%	20	20	3%	6%
(> 1500)	2%	5%	40	40	0%	3%

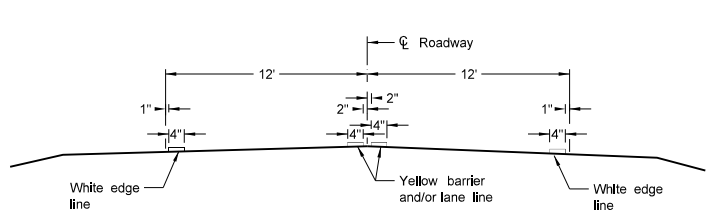
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-13-2014	
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DATE	CHANGE

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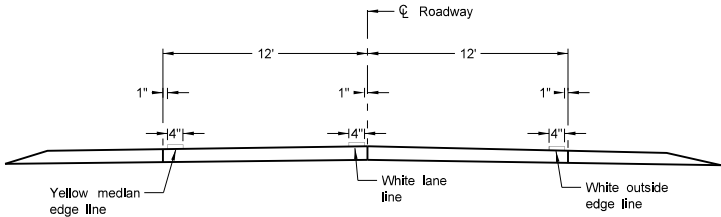
PAVEMENT MARKING

D-762-4

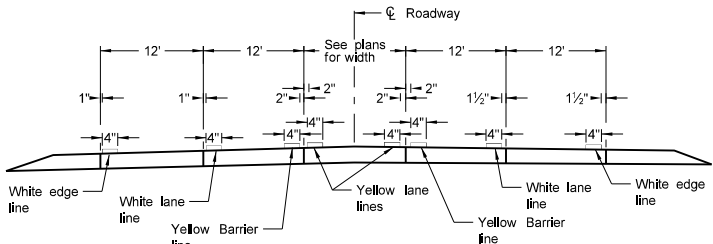
NOTES:
1. Edge lines shall be continued through private drives and field drives and broken for intersections.



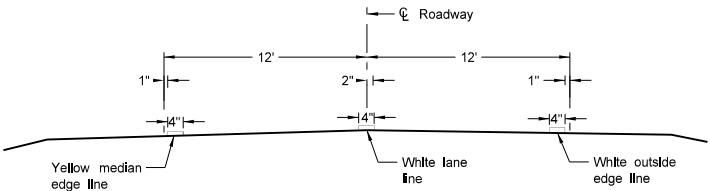
Two Lane Two Way
RURAL ROADWAY



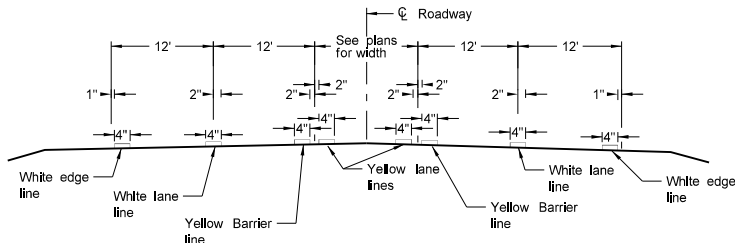
Two Lane Roadway
INTERSTATE HIGHWAY
Concrete Section



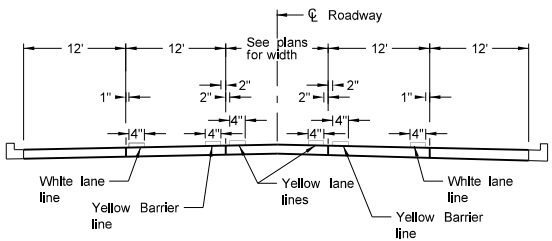
RURAL FIVE LANE ROADWAY
Concrete Section



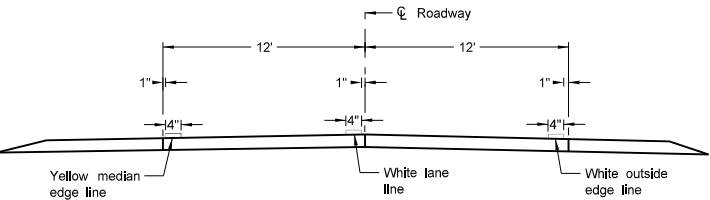
Two Lane Divided
Rural Roadway
PRIMARY HIGHWAY
Asphalt Section



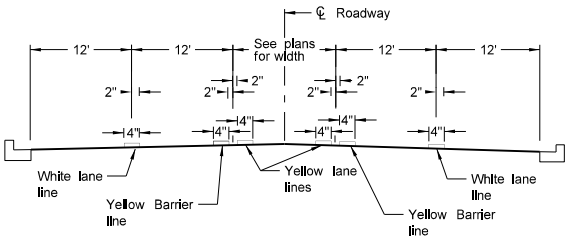
RURAL FIVE LANE ROADWAY
Asphalt Section



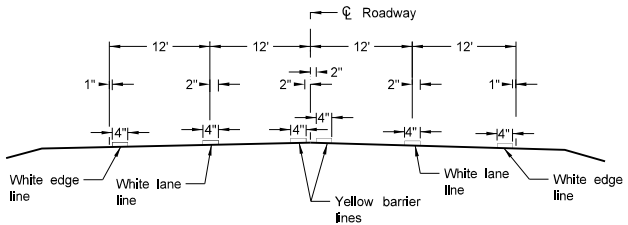
URBAN FIVE LANE SECTION
Concrete Section



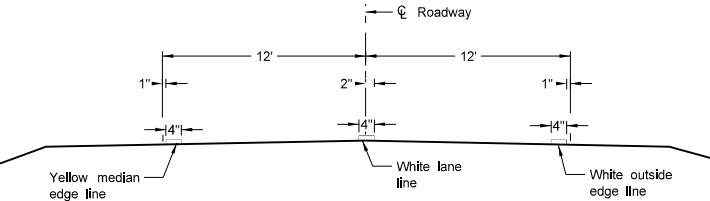
Two Lane Roadway
PRIMARY HIGHWAY
Concrete Section



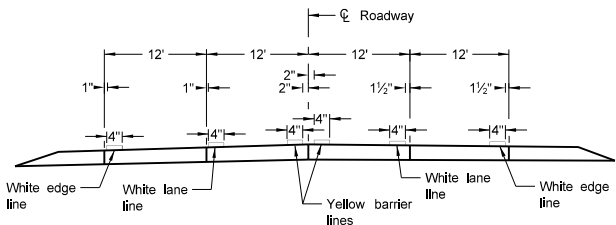
URBAN FIVE LANE SECTION
Asphalt Section



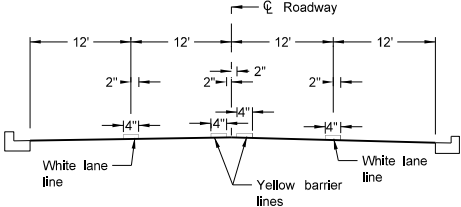
RURAL FOUR LANE ROADWAY
Asphalt Section



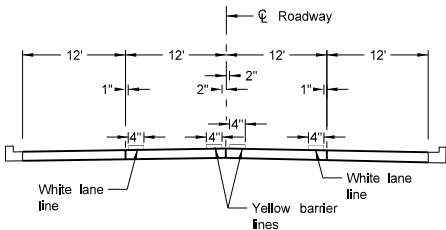
Two Lane Roadway
INTERSTATE HIGHWAY
Asphalt Section



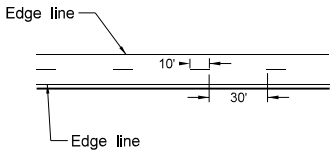
RURAL FOUR LANE ROADWAY
Concrete Section



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

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