

**JOB # 12
NORTH DAKOTA**

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	20773	1	1

DEPARTMENT OF TRANSPORTATION

TAU-2-094(136)928
Barnes County
City of Valley City
Main St W from 24th Ave to 5th St

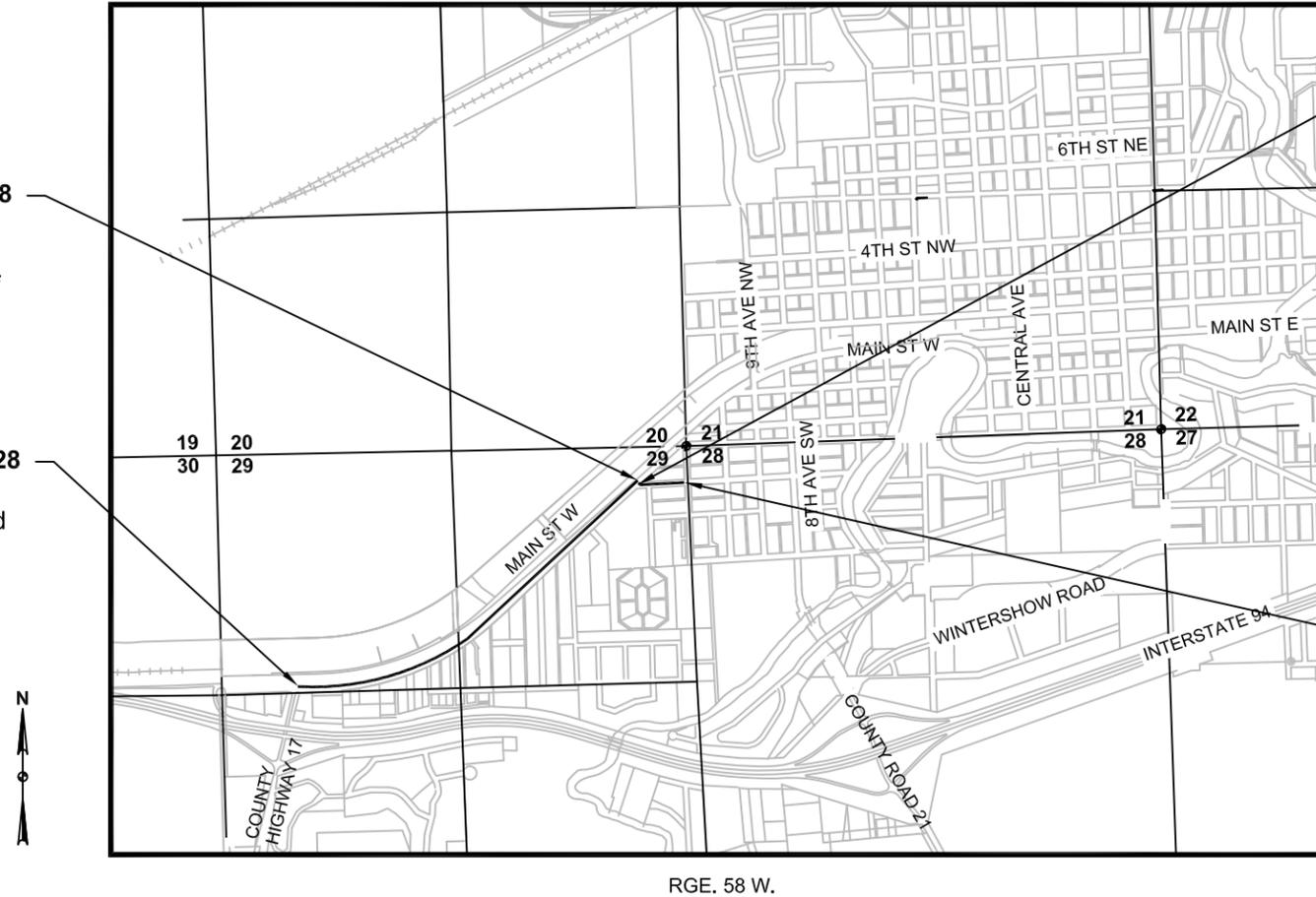
Hot Bituminous Pavement Shared-Use Path Construction and Incidentals.

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 NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
TAU-2-094(136)928		
MAIN ST W	0.886	0.886
5TH STREET SW	0.103	0.103
	<u>0.989</u>	<u>0.989</u>

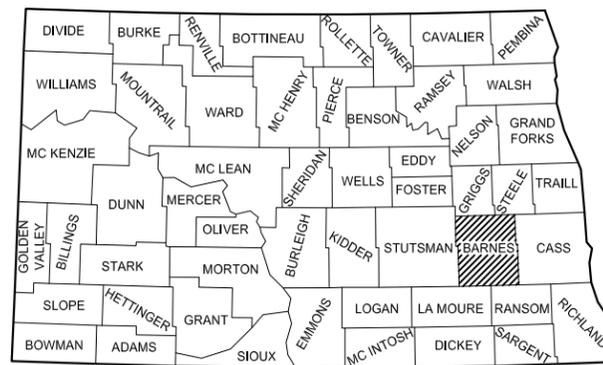
**End Project Number TAU-2-094(136)928
Main St W Shared-Use Path**
Sta. 57+75 = A Point 345 Feet South and
559 Feet West of the Northeast Corner of
Sec. 29, Twp. 140 N., Rge. 58 W

**Begin Project Number TAU-2-094(136)928
Main St W Shared-Use Path**
Sta. 10+99 = A Point 2,582 Feet South and
845 Feet East of the Northwest Corner of
Sec. 29, Twp. 140 N., Rge. 58 W.



**Begin Project Number TAU-2-094(136)928
5th Street Bike Lane**
Sta. 60+00 = A Point 411 Feet South and
536 Feet West of the Northeast Corner of
Sec. 29, Twp. 140 N., Rge. 58 W.

**End Project Number TAU-2-094(136)928
5th Street Bike Lane**
Sta. 65+42 = A Point 402 Feet South and
22 Feet West of the Northeast Corner of
Sec. 29, Twp. 140 N., Rge. 58 W



STATE COUNTY MAP

DESIGNERS

Michael Strom

I hereby certify that the attached 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 ND.

APPROVED DATE 02/10/2015

Chad A. Petersen /s/
KADRMAS, LEE & JACKSON, INC.

APPROVED DATE 02/20/2015

Robert Fode /s/
OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

THIS DOCUMENT WAS
ORIGINALLY ISSUED AND
SEALED BY
CHAD A. PETERSEN
REGISTRATION NUMBER
PE 4884
ON 02/12/2015 AND THE
ORIGINAL DOCUMENT IS
STORED AT THE
NORTH DAKOTA DEPARTMENT
OF TRANSPORTATION

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-2-094(136)928	2	1

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LIST OF STANDARD DRAWINGS

<u>STANDARD NO.</u>	<u>DESCRIPTION</u>
D-101-1, 2 & 3	NDDOT Abbreviations
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D-101-30, 31 & 32	Symbols
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D-704-7 & 8	Breakaway Systems For Construction Zone Signs
D-704-13	Barricade and Channelizing Device Details
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D-704-25	Lane Closures on Urban Streets Layouts
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D-754-26 & 27	Sign Punching, Stringer, and Support Location Details Regulatory, Warning and Guide Signs
D-754-46	Bike Route Signs-Punching, Stringer, Support Location Details for Regulatory Warning and Guide Signs
D-754-87	Sign Punching, Stringer and Support Location Details for Street Name Signs and 911 Signing

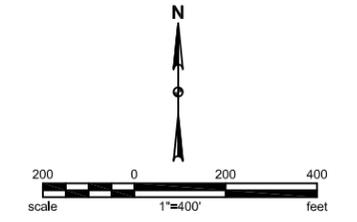
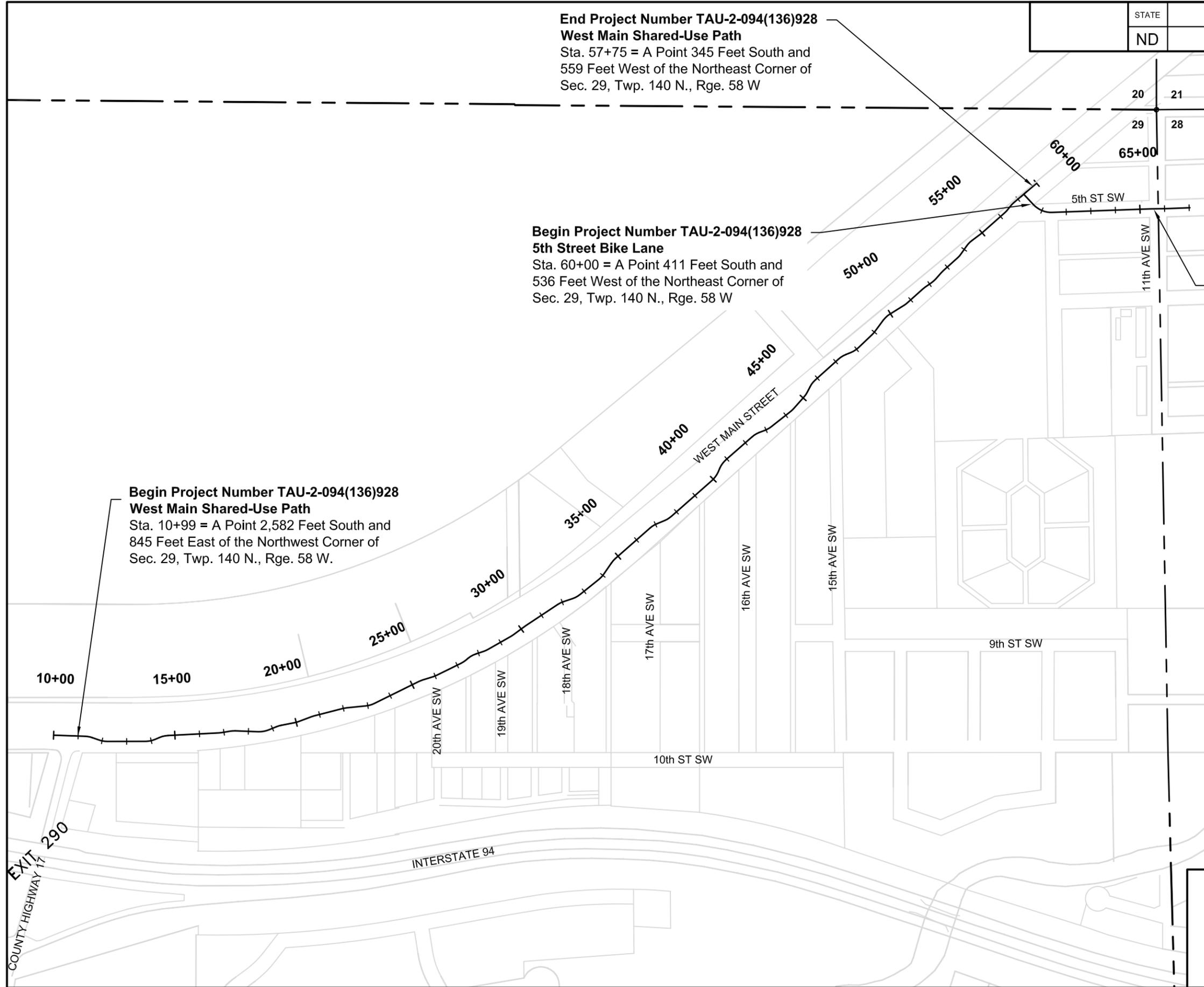
End Project Number TAU-2-094(136)928
West Main Shared-Use Path
 Sta. 57+75 = A Point 345 Feet South and
 559 Feet West of the Northeast Corner of
 Sec. 29, Twp. 140 N., Rge. 58 W

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	4	1

Begin Project Number TAU-2-094(136)928
5th Street Bike Lane
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Scope of Work
 Main Street W
 24th Ave SW to 11th Ave SW

PLAN NOTES

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-2-094(136)928	6	1

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

203-P01 COMMON EXCAVATION-TYPE A: Payment for "COMMON EXCAVATION-TYPE A" shall be at plan quantity.

230-P01 SUBGRADE PREPARATION-TYPE A: Prepare the subgrade to a depth of 6 inches and construct in accordance with Section 230.04 D of the Standard Specifications.

The engineer will complete two (2) compaction tests for every 500 LF of subgrade preparation. The engineer will randomly select the test locations and perform the compaction tests.

251-P01 SEEDING CLASS III: The seed mixture will be as follows:

<u>Species</u>	<u>Pound Pure Live Seed/Acre</u>
Kentucky Bluegrass	50
Perennial Rye Grass	20
Six-Week Fescue or Dural-hard Fescue	30
Annual Rye Grass	<u>50</u>
	150

430-P01 COMMERCIAL GRADE HOT MIX ASPHALT: Provide commercial grade asphalt that meets the requirements of Superpave FAA 40 or 41 in Section 430.03 C, "Superpave Mix Properties".

704-P01 CONSTRUCTION SIGNING: Furnish the necessary traffic control devices as included in Section 100. Portable signs, delineator drums and tubular markers have been provided for construction activities taking place on or immediately adjacent to the roadway.

The contractor shall use Standard Drawing D-704-25 and sign accordingly to their operations.

The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid at the contract unit price for each device. Additional devices required to accommodate the Contractor's operation will be the Contractor's responsibility.

970-P01 HERBICIDE WEED CONTROL: Place a granular herbicide in the areas where the hot bituminous pavement shared-use path will be placed. Place the herbicide to the width shown on the typical sections (centered on the shared-use path centerline and incorporated into the subgrade prior to placement of the base material). Use Norasac 106 at an application rate of 100-120 lbs/acre (2.3-2.8 lbs/1,000 s.f.), Dyclomec 46 at an application rate of 250-300 lbs/acre (5.75-7.0 lbs/1,000 s.f.), or an approved equal. Place the herbicide immediately ahead of the placement of the aggregate base course. The cost of the materials, equipment, labor, and incidentals to complete this item is included in the price bid per linear foot of "HERBICIDE WEED CONTROL" measured along the shared-use path centerline.

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ENVIROMNENTAL COMMIMENTS

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-2-094(136)928	6	2

ENVIRONMENT COMMITMENTS: The City of Valley City, the North Dakota Department of Transportation, and the Federal Highway Administration have made several environmental commitments to various agencies and the public to secure approval of this project. The environmental commitments are as follows:

Commitment No. 1: Construction noise will be minimized.

Action taken/required: When and where excess noise levels are anticipated to be a problem, the Contractor shall take measures to reduce noise impacts. Regulating the hours of construction and equipping machinery with noise reduction devices can control construction noise. Staging areas shall be located as far from noise sensitive areas as practicable. The city allows construction during the following times

Monday through Friday 6 AM to 9 PM
 Saturday 7 AM to 7 PM
 Sunday By permission only

Required Permits:

North Dakota Department of Health – NDPDES Permit
 Status: To be obtained by the Contractor prior to construction

Wetland Impact Table									
Wetland Number	Location	LONG / LAT (Dec. Deg.)	Cowardin Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	USACE Jurisdictional Wetland	Impacts to Wetlands	
								Temp.	Perm.
"NO WETLANDS PRESENT"									
TOTALS					-			-	-

ESTIMATE OF QUANTITIES

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-2-094(136)928	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	SHARED- USE PATH
103	0100	CONTRACT BOND	L SUM	1
202	0130	REMOVAL OF CURB & GUTTER	LF	251
203	0101	COMMON EXCAVATION-TYPE A	CY	616
203	0109	TOPSOIL	CY	1,512
216	0100	WATER	M GAL	42
230	0300	SUBGRADE PREPARATION-TYPE A	STA	41.56
251	0300	SEEDING CLASS III	ACRE	0.92
253	0201	HYDRAULIC MULCH	ACRE	0.92
261	0112	FIBER ROLLS 12IN	LF	8,906
261	0113	REMOVE FIBER ROLLS 12IN	LF	4,453
302	0121	AGGREGATE BASE COURSE CL 5	CY	924
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	782
702	0100	MOBILIZATION	L SUM	1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	280
704	1052	TYPE III BARRICADE	EA	14
704	1067	TUBULAR MARKERS	EA	84
708	1540	INLET PROTECTION-SPECIAL	EA	6
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	6
748	0140	CURB & GUTTER-TYPE I	LF	251
750	0115	SIDEWALK CONCRETE 4IN	SY	227
750	2115	DETECTABLE WARNING PANELS	SF	300
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	103
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	73
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	230
762	0103	PVMT MK PAINTED-MESSAGE	SF	17
762	1106	PVMT MK PAINTED 6IN LINE	LF	1,532
762	1124	PVMT MK PAINTED 24IN LINE	LF	146
970	0110	HERBICIDE WEED CONTROL	LF	4,156

BASIS OF ESTIMATE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	10	1

TYPICAL SECTION A
Station 11+11 to 57+00 = 45.89 STA
Exceptions for Intersections = 4.33 STA
41.56 STA

Material	Unit	Width (ft)	Quantity per Station
Aggregate Base Course CL 5 (To be measured as in-place compacted volume (CY). The measured volume will not be adjusted for an additional 25% due to compaction shrinkage.)	CY	12'	22.2
SS1H or CSS1H or MS1 Emulsified Asphalt for HBP Tack Coat @ 0.05 Gal/SY (To be included in the price bid for Hot Mix Asphalt)	GAL	10'	5.6
Commercial Grade Hot Mix Asphalt (FAA 40 or 41) @ 2 Ton/CY	TON	10'	18.5
Asphalt Cement PG 58-28 @ 6.5% of Hot Mix Asphalt (To be included in the price bid for Hot Mix Asphalt)	TON	10'	1.2
Subgrade Preparation-Type A	STA	14'	1.0
Herbicide Weed Control	LF	14'	100.0
Removal of Pavement @ 2.0 Ton/CY			
Water for Compaction: 10 Gal/CY of Embankment Quantities 30 Gal/CY of Aggregate Base Course CL 5 10 M Gal for Dust Palliative			
Seeding: The entire area outside the graded roadway disturbed by construction of this project shall be seeded. The exact limits shall be determined by the Engineer in the field.			

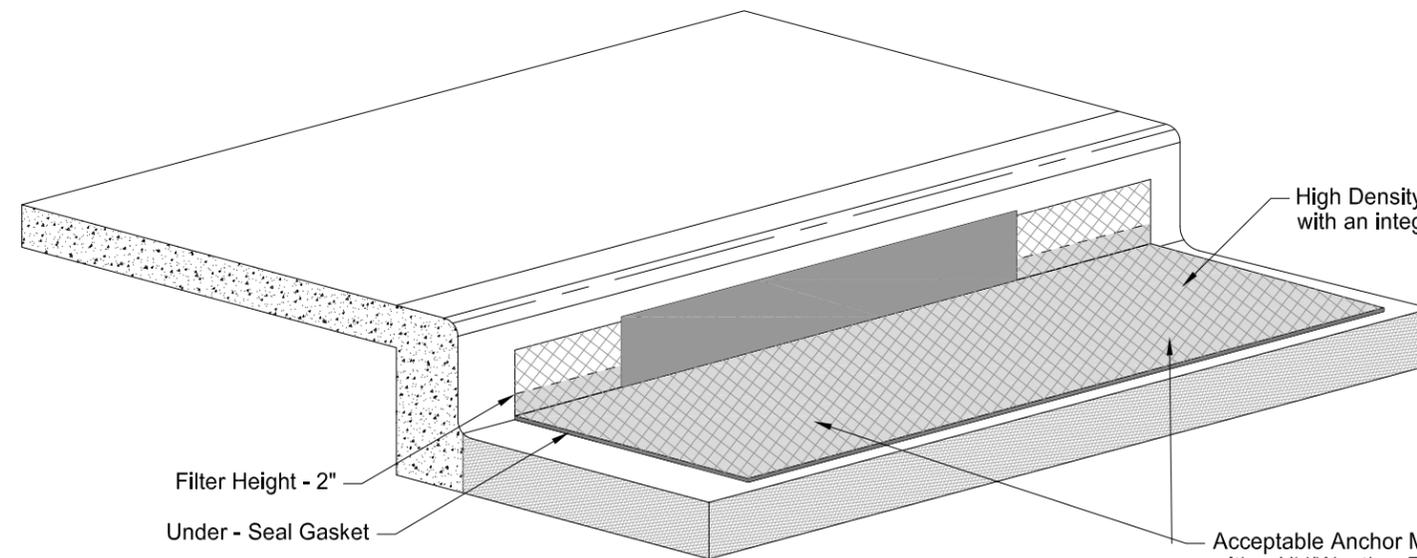
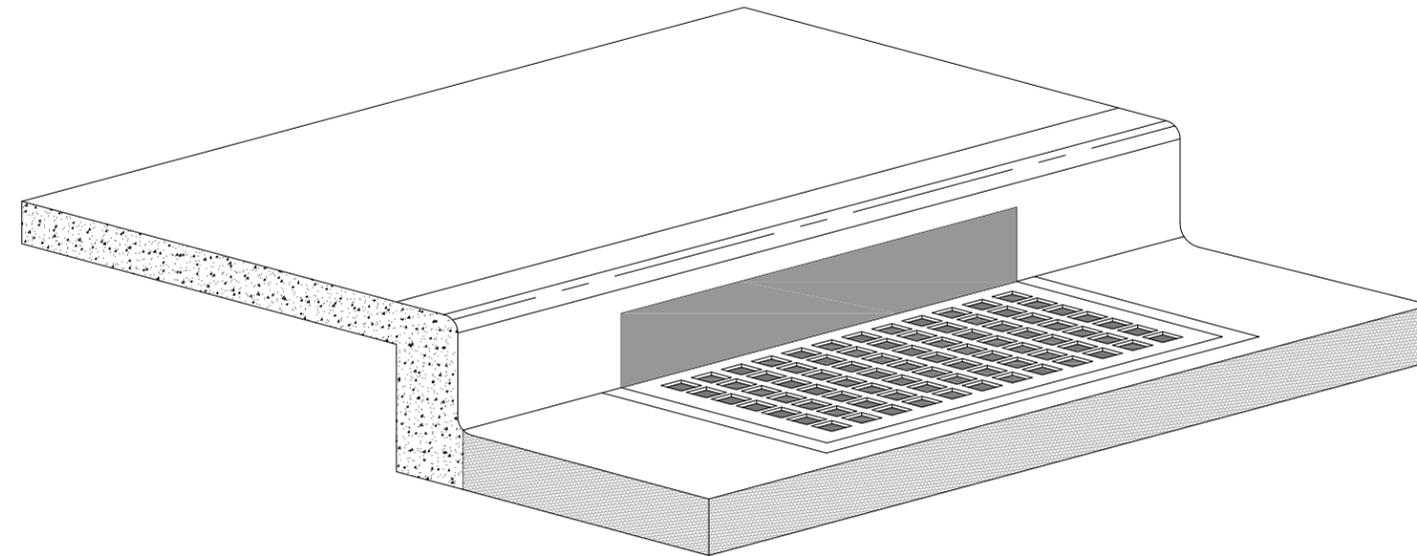
Common Excavation (CY)	Embankment (CY)	Borrow (CY)	Excess Excavation (CY)
616	150	0	466

Topsoil Excavation (CY)	Topsoil Embankment (CY)	Additional Topsoil (CY)
1,512	939	0

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Basis of Estimate
 Main Street W
 24th Ave SW to 11th Ave SW

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-2-094(136)928	20	1



Filter Height - 2"
Under - Seal Gasket

High Density Polyethylene (HDPE) high flow jacket filter (8,000 opening per SY) with an integrated 425 um (micron meter) fine filter particle mesh

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.

Inlet Protection Device

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:

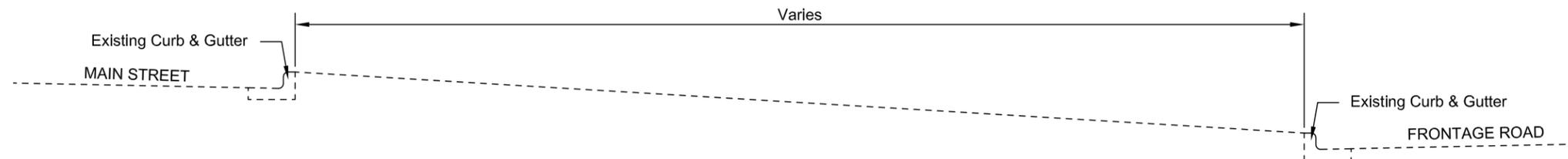
1. Inlet Protection shall be maintained or replaced at the direction of the engineer.
2. Manufactured alternatives may be substituted at the direction of the engineer.
3. When removing or maintaining inlet protection, care shall be taken so that fabric does not fall into the inlet. Any material falling into the inlet shall be removed immediately.
4. Inlet protection is to be used (and reused) as needed to prevent material from entering inlets as the work progresses through the project.

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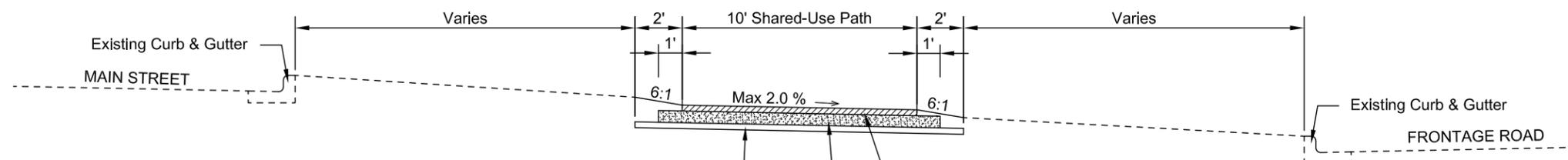
Inlet Protection Detail

Main Street W
24th Ave SW to 11th Ave SW

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-2-094(136)928	30	1



**EXISTING TYPICAL SECTION
STA. 10+99 TO STA. 57+18**



Apply 14' Wide Herbicide Weed Control
Incorporate into subgrade prior to
placement of Aggregate Base

3" Hot Bituminous Pavement
Area = 2.50 Sq. Ft. (In 2 Lifts)
6" Aggregate Base Course
Area = 6.00 Sq. Ft.

**TYPICAL SECTION
STA. 11+11 TO STA. 57+00**

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Typical Sections
Main Street W
24th Ave SW to 11th Ave SW

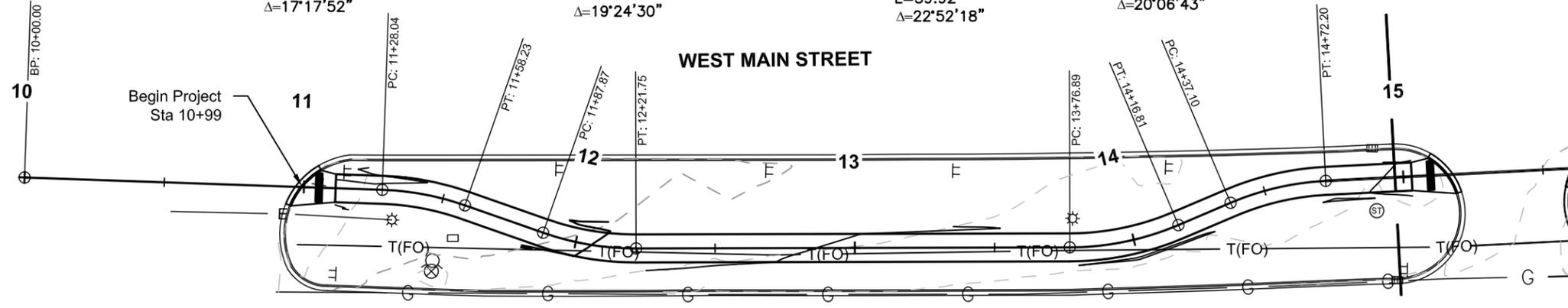
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	60	1

CL Curve Data
 PI=11+43.25
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 E=2584326.54
 R=100.00'
 L=30.19'
 Δ=17°17'52"

CL Curve Data
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 N=464359.29
 E=2584385.58
 R=100.00'
 L=33.87'
 Δ=19°24'30"

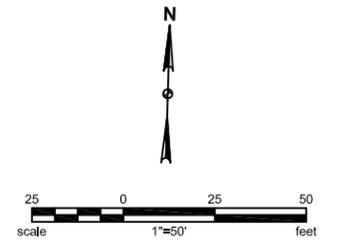
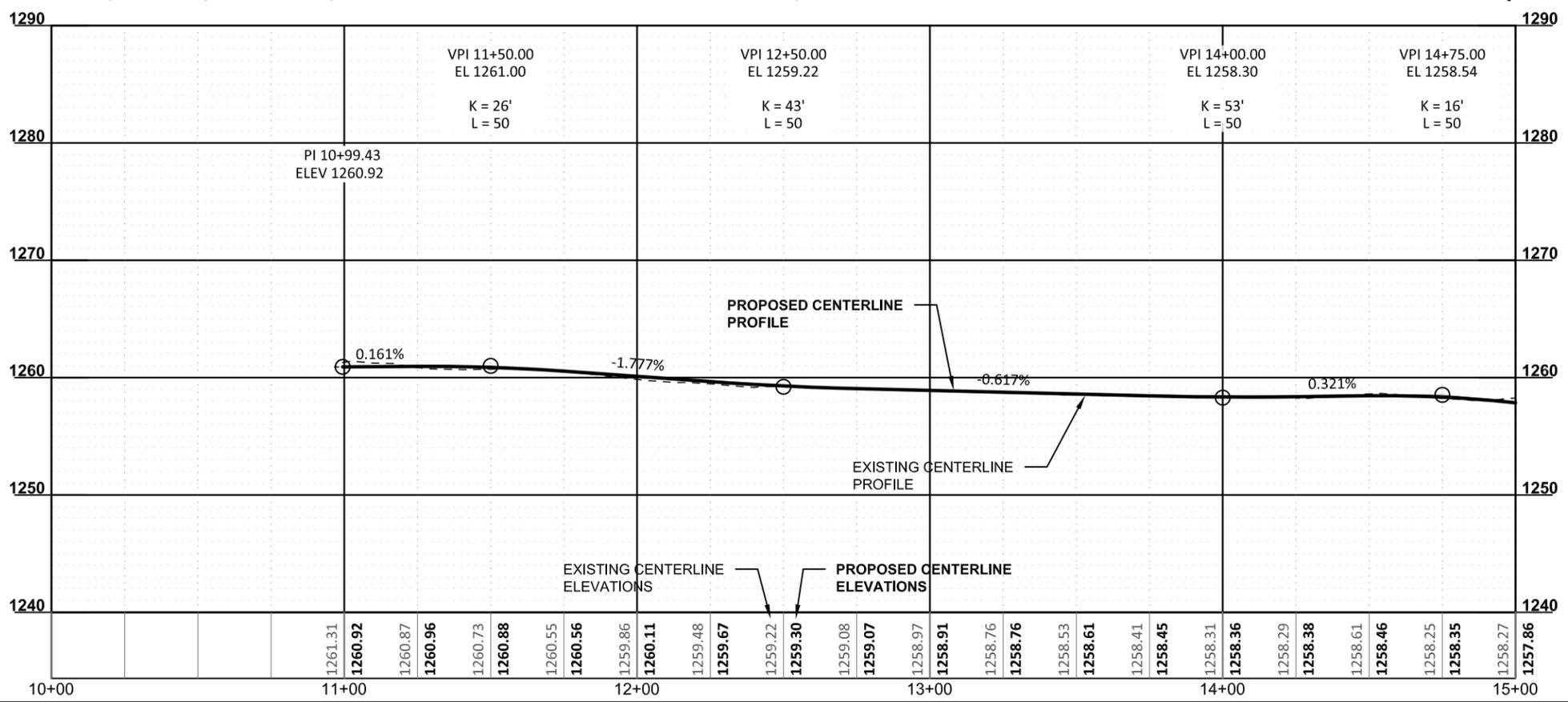
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 R=100.00'
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 Δ=22°52'18"

CL Curve Data
 PI=14+54.84
 N=464389.47
 E=2584630.92
 R=100.00'
 L=35.10'
 Δ=20°06'43"



REMOVAL OF CURB & GUTTER	STA. 11+00	17.3 LF
AGGREGATE BASE COURSE CL 5	STA. 10+00 to 15+00	86.4 CY
COMMERCIAL GRADE HOT MIX ASPHALT	STA. 10+00 to 15+00	72.8 TON
CURB & GUTTER-TYPE I	STA. 11+00	17.3 LF
SIDEWALK CONCRETE 4IN	STA. 11+00	14.9 SY
DETECTABLE WARNING PANELS	STA. 11+00	20 SY

COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET



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Plan & Profile
 Main Street W
 24th Ave SW to 11th Ave SW

CL Curve Data
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 E=2584861.55
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 L=11.89'
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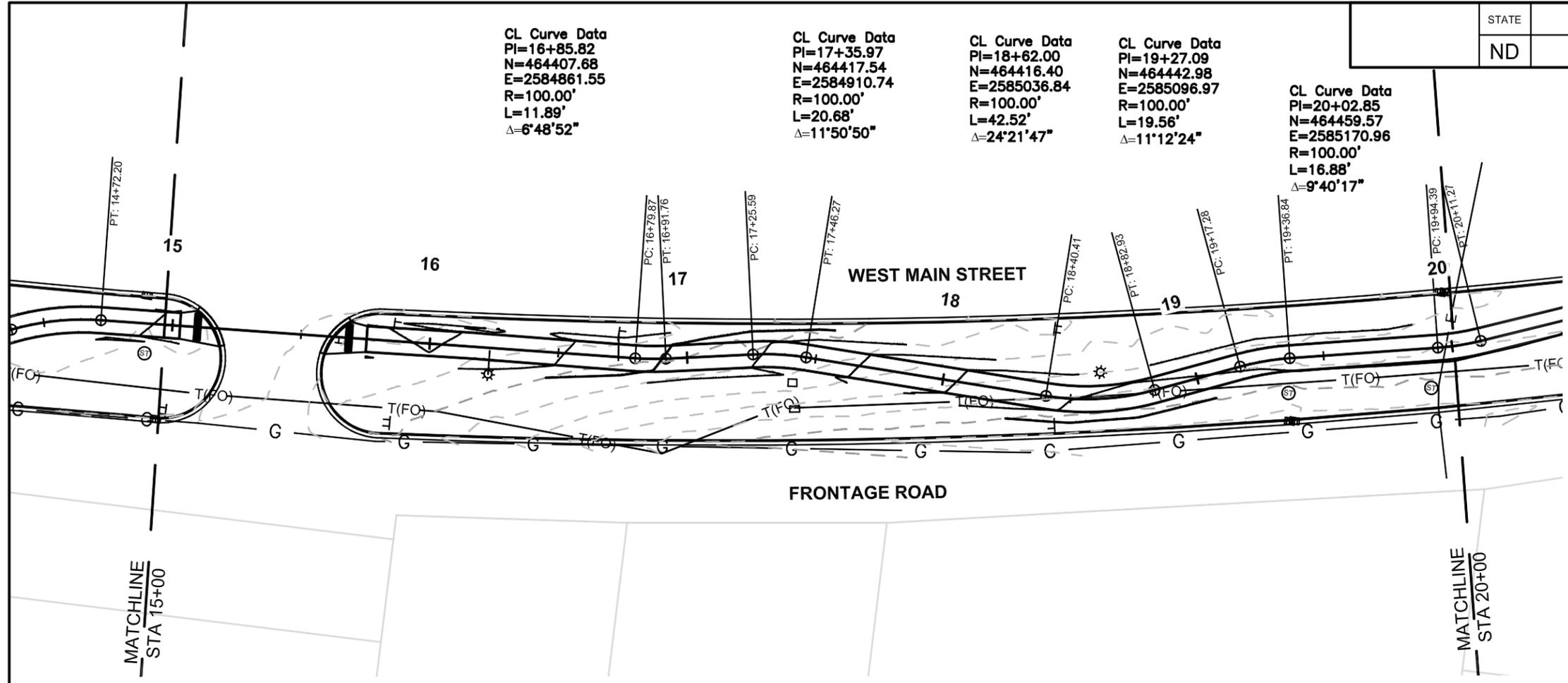
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 L=20.68'
 Δ=11°50'50"

CL Curve Data
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 E=2585036.84
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 L=42.52'
 Δ=24°21'47"

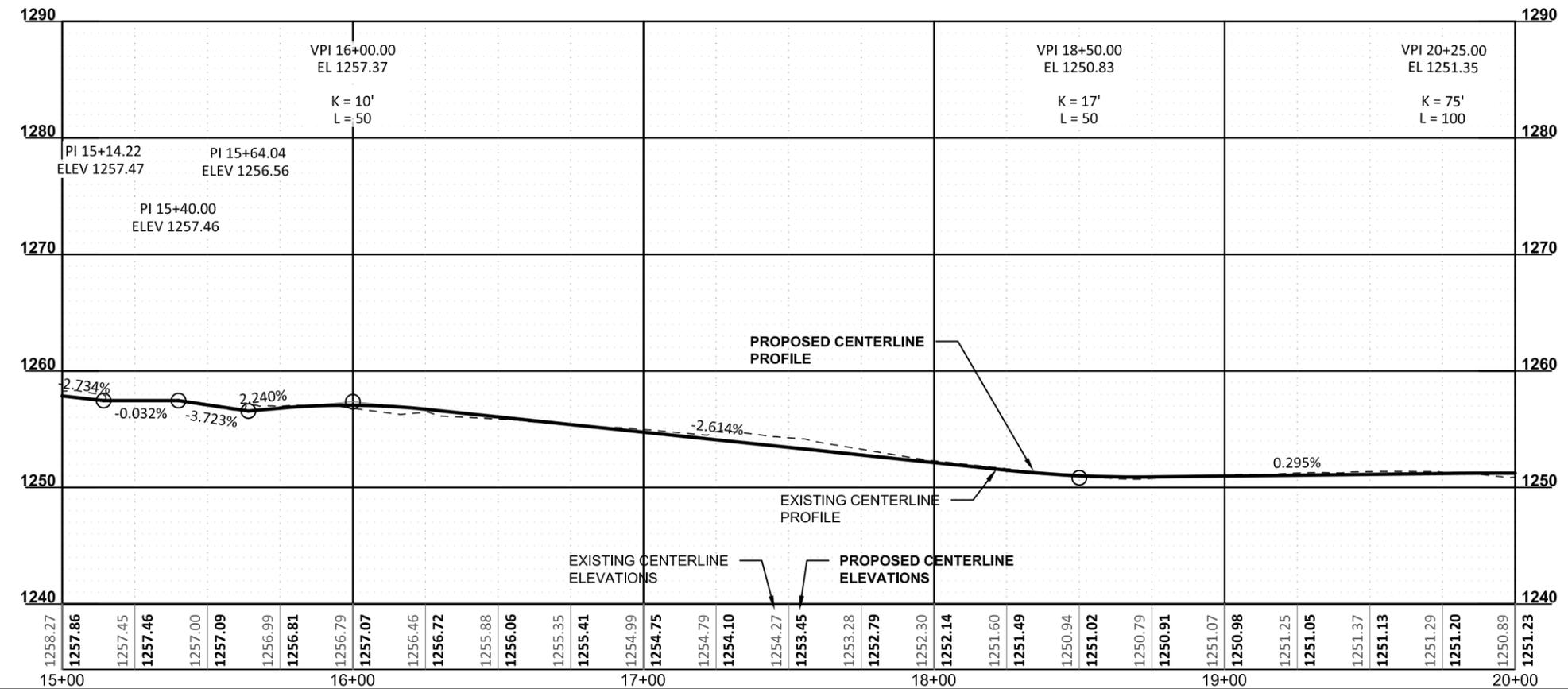
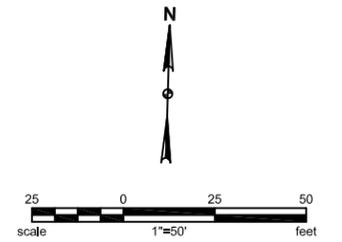
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 E=2585096.97
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 Δ=11°12'24"

CL Curve Data
 PI=20+02.85
 N=464459.57
 E=2585170.96
 R=100.00'
 L=16.88'
 Δ=9°40'17"

REMOVAL OF CURB & GUTTER	
STA. 15+14	16.9 LF
STA. 15+64	16.9 LF
	33.8 LF
AGGREGATE BASE COURSE CL 5	
STA. 15+00 to 20+00	95.0 CY
COMMERCIAL GRADE HOT MIX ASPHALT	
STA. 15+00 to 20+00	80.8 TON
CURB & GUTTER-TYPE I	
STA. 15+14	16.9 LF
STA. 15+64	16.9 LF
	33.8 LF
SIDEWALK CONCRETE 4IN	
STA. 15+14	15.6 SY
STA. 15+64	15.6 SY
	31.2 SY
DETECTABLE WARNING PANELS	
STA. 15+14	20 SY
STA. 15+64	20 SY
	40 SY



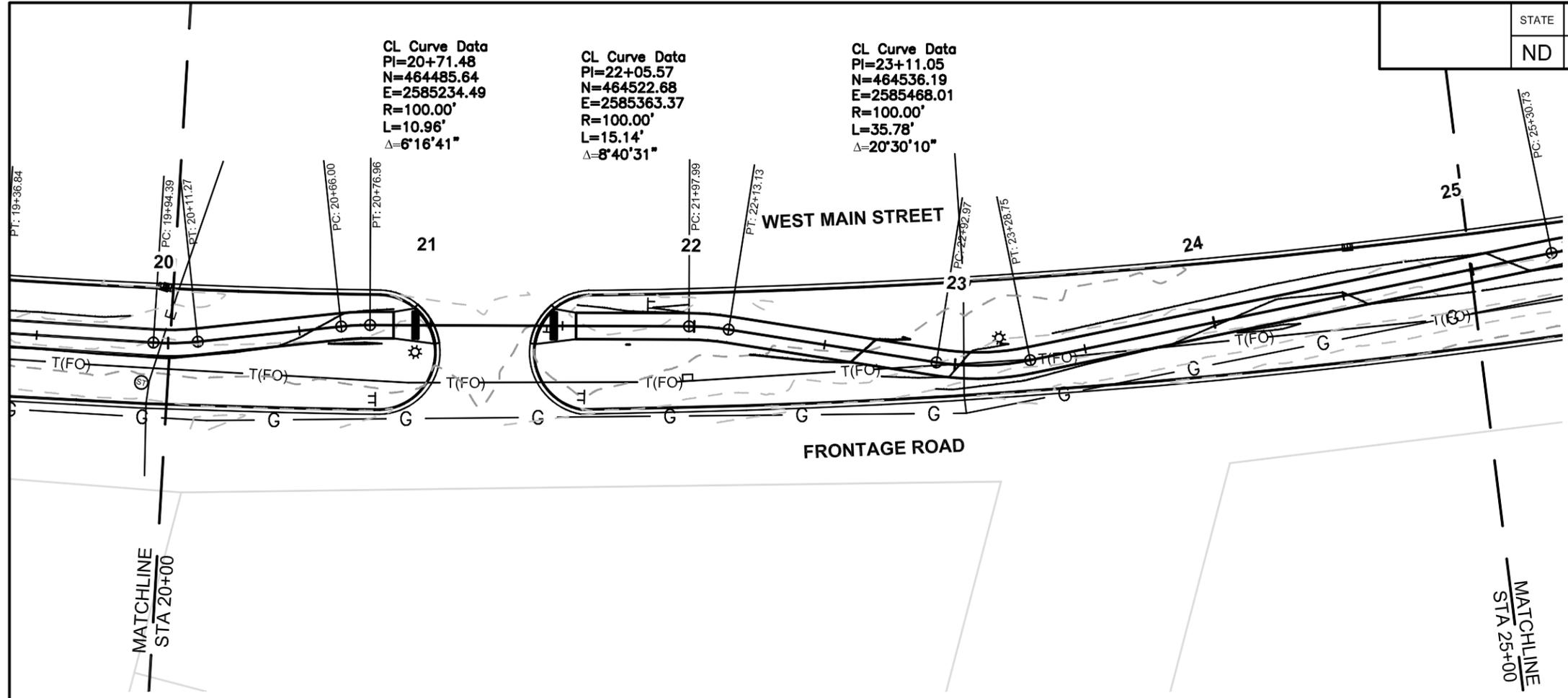
COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
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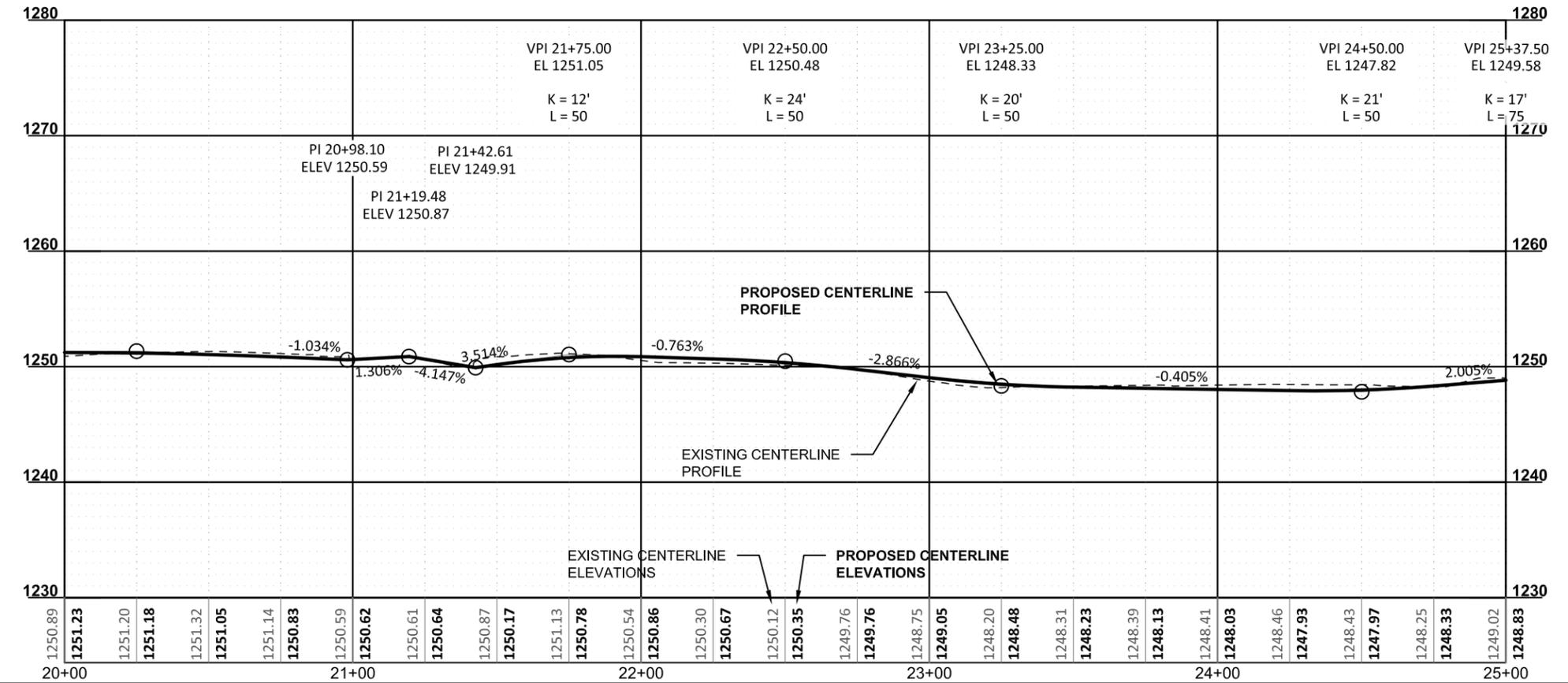
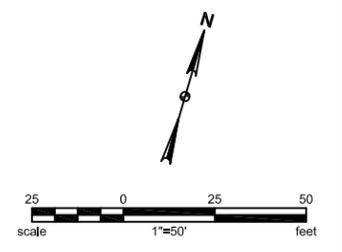
Plan & Profile
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	60	3



REMOVAL OF CURB & GUTTER	
STA. 20+98	16.0 LF
STA. 21+43	15.9 LF
	31.9 LF
AGGREGATE BASE COURSE CL 5	
STA. 20+00 to 25+00	95.7 CY
COMMERCIAL GRADE HOT MIX ASPHALT	
STA. 20+00 to 25+00	81.3 TON
CURB & GUTTER-TYPE I	
STA. 20+98	16.0 LF
STA. 21+43	15.9 LF
	31.9 LF
SIDEWALK CONCRETE 4IN	
STA. 20+98	16.6 SY
STA. 21+43	16.5 SY
	33.1 SY
DETECTABLE WARNING PANELS	
STA. 20+98	20 SY
STA. 21+43	20 SY
	40 SY

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Plan & Profile
 Main Street W
 24th Ave SW to 11th Ave SW

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ND	TAU-2-094(136)928	60	4

CL Curve Data
 PI=25+38.52
 N=464642.67
 E=2585669.45
 R=100.00'
 L=15.53'
 Δ=8°54'00"

CL Curve Data
 PI=26+00.35
 N=464662.77
 E=2585727.96
 R=100.00'
 L=15.49'
 Δ=8°52'39"

CL Curve Data
 PI=27+29.70
 N=464723.19
 E=2585842.37
 R=100.00'
 L=24.22'
 Δ=13°52'45"

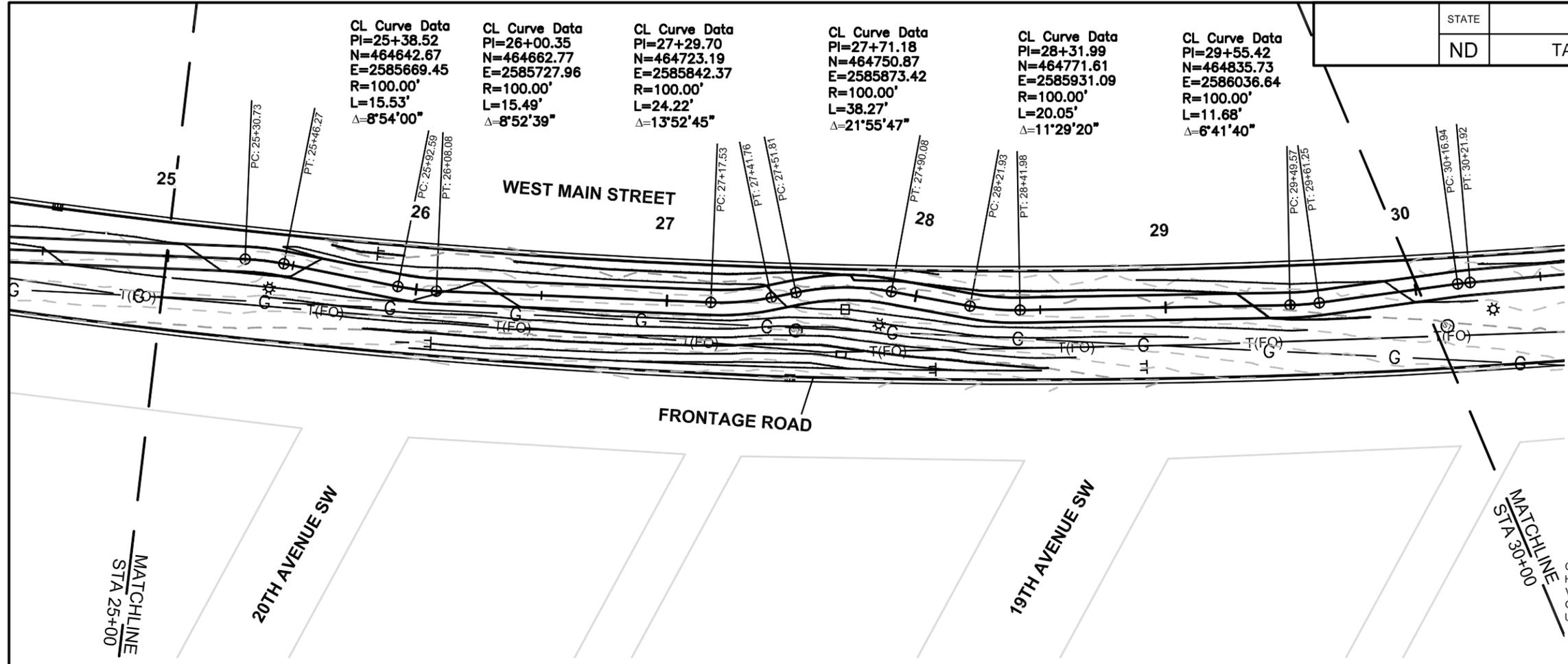
CL Curve Data
 PI=27+71.18
 N=464750.87
 E=2585873.42
 R=100.00'
 L=38.27'
 Δ=21°55'47"

CL Curve Data
 PI=28+31.99
 N=464771.61
 E=2585931.09
 R=100.00'
 L=20.05'
 Δ=11°29'20"

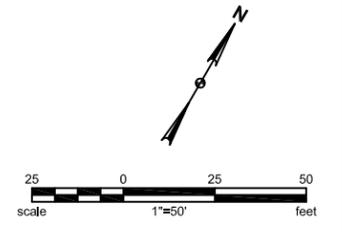
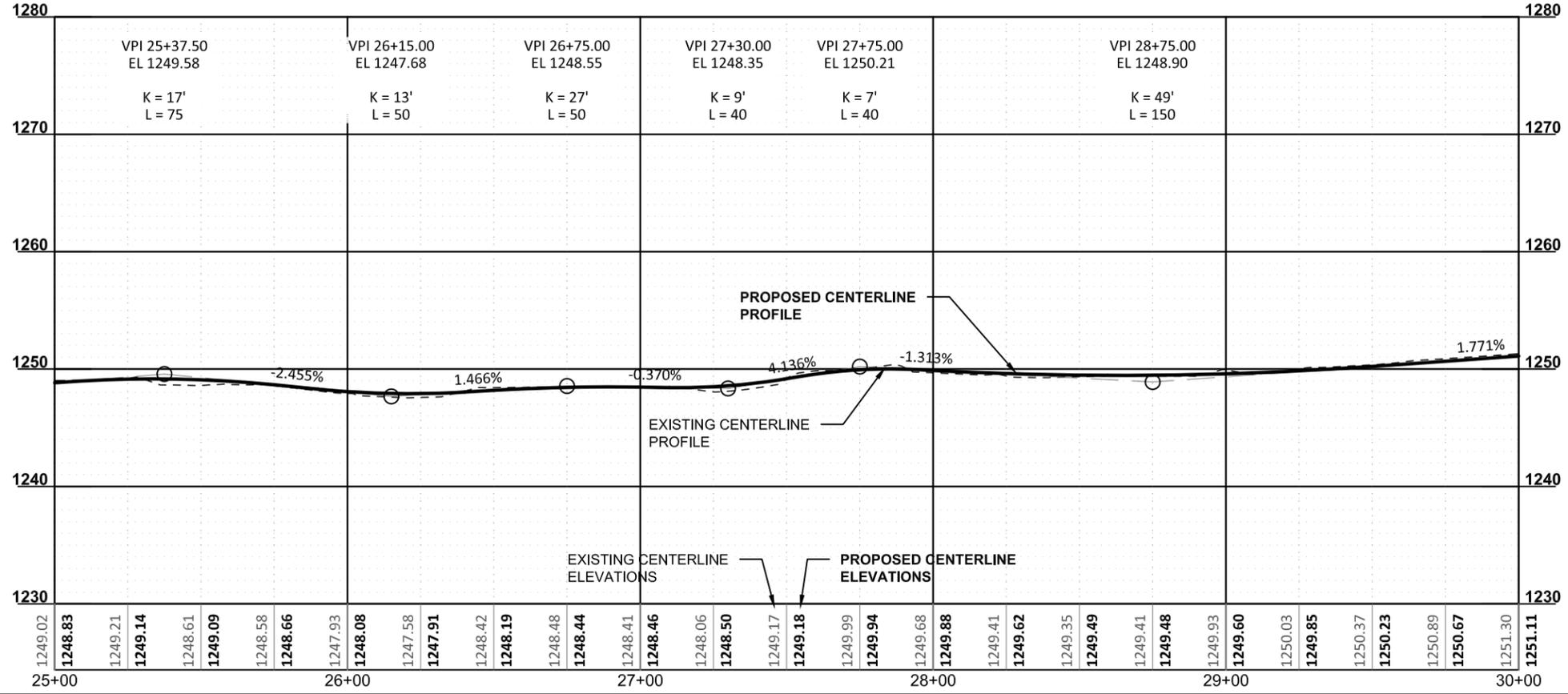
CL Curve Data
 PI=29+55.42
 N=464835.73
 E=2586036.64
 R=100.00'
 L=11.68'
 Δ=6°41'40"

AGGREGATE BASE COURSE CL 5
 STA. 25+00 to 30+00 111.1 CY

COMMERCIAL GRADE HOT MIX ASPHALT
 STA. 25+00 to 30+00 92.6 TON

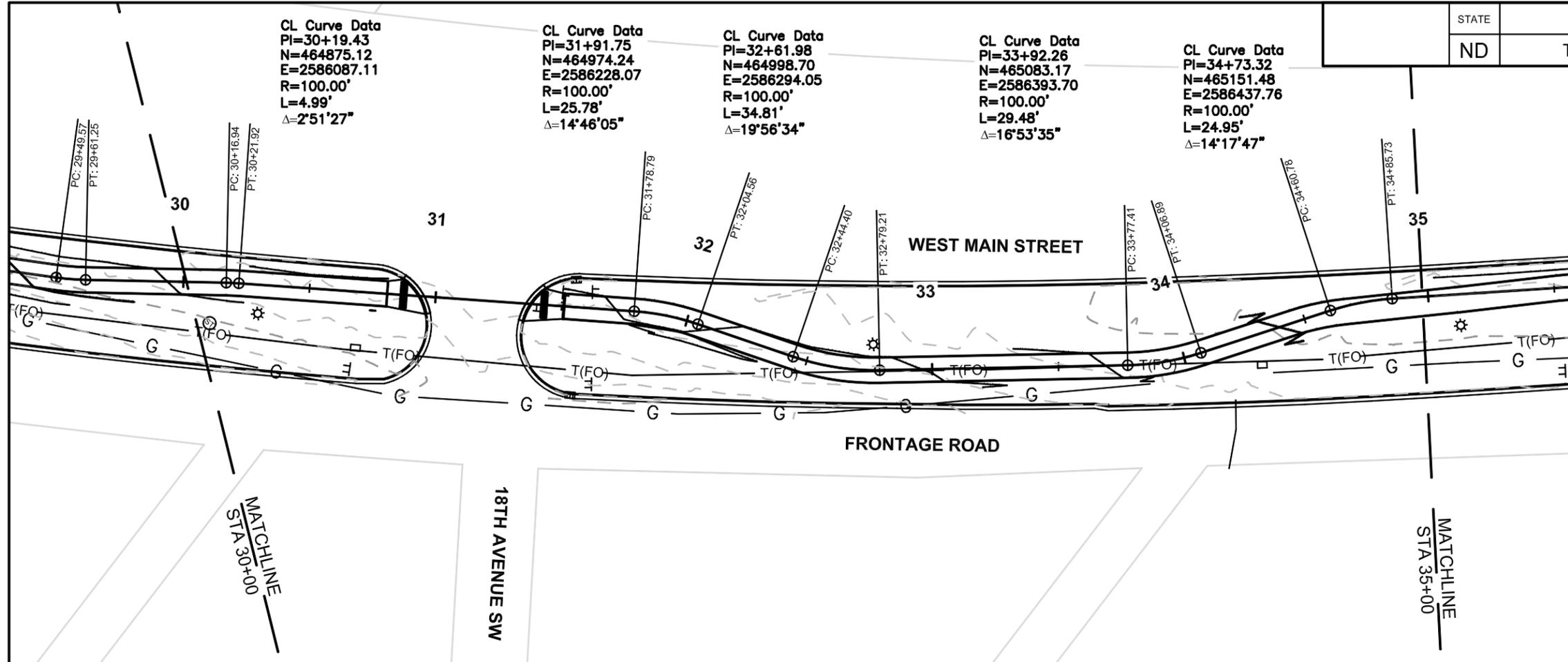


COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET



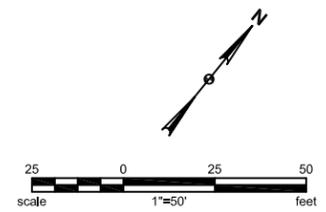
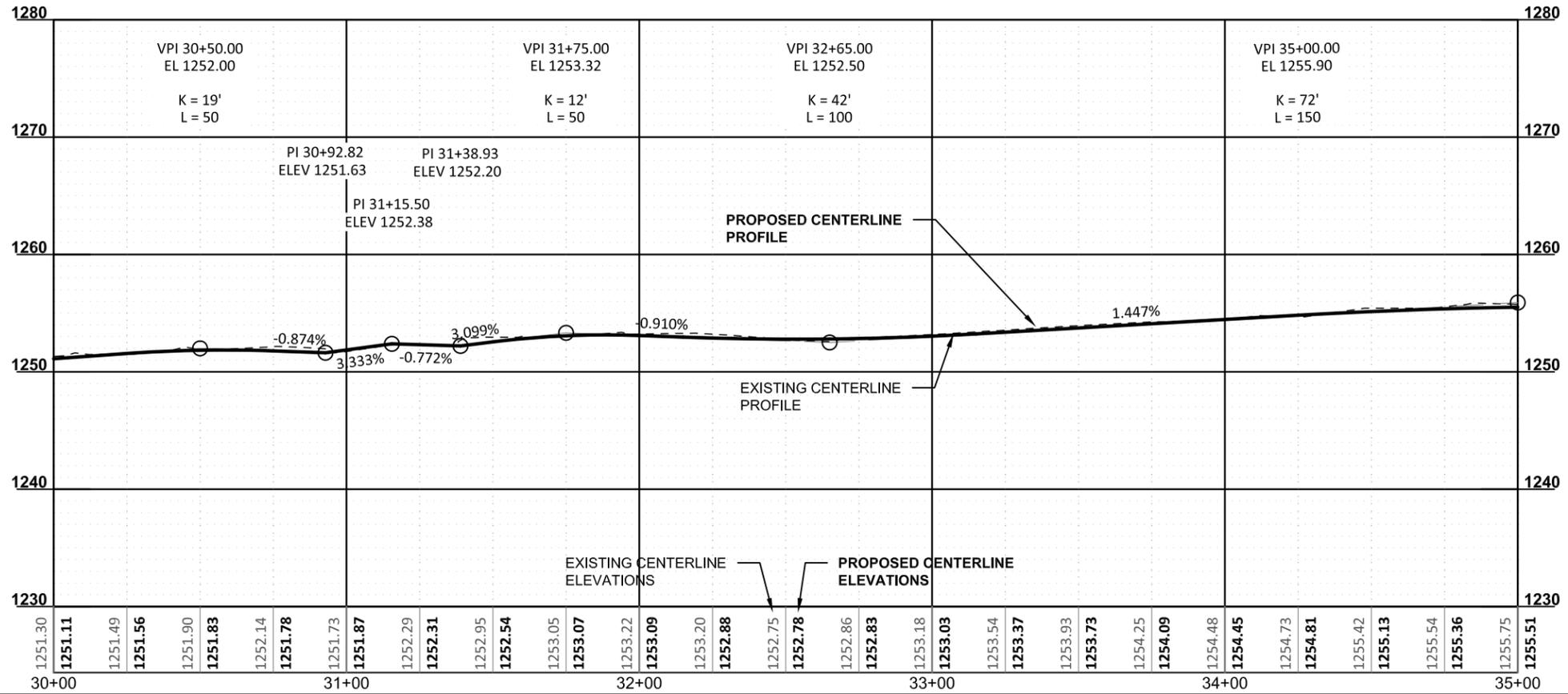
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Plan & Profile
 Main Street W
 24th Ave SW to 11th Ave SW



REMOVAL OF CURB & GUTTER	
STA. 30+93	16.6 LF
STA. 31+39	16.6 LF
	33.2 LF
AGGREGATE BASE COURSE CL 5	
STA. 30+00 to 35+00	95.5 CY
COMMERCIAL GRADE HOT MIX ASPHALT	
STA. 30+00 to 35+00	81.2 TON
CURB & GUTTER-TYPE I	
STA. 30+93	16.6 LF
STA. 31+39	16.6 LF
	33.2 LF
SIDEWALK CONCRETE 4IN	
STA. 30+93	15.8 SY
STA. 31+39	15.8 SY
	31.6 SY
DETECTABLE WARNING PANELS	
STA. 30+93	20 SY
STA. 31+39	20 SY
	40 SY

COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET



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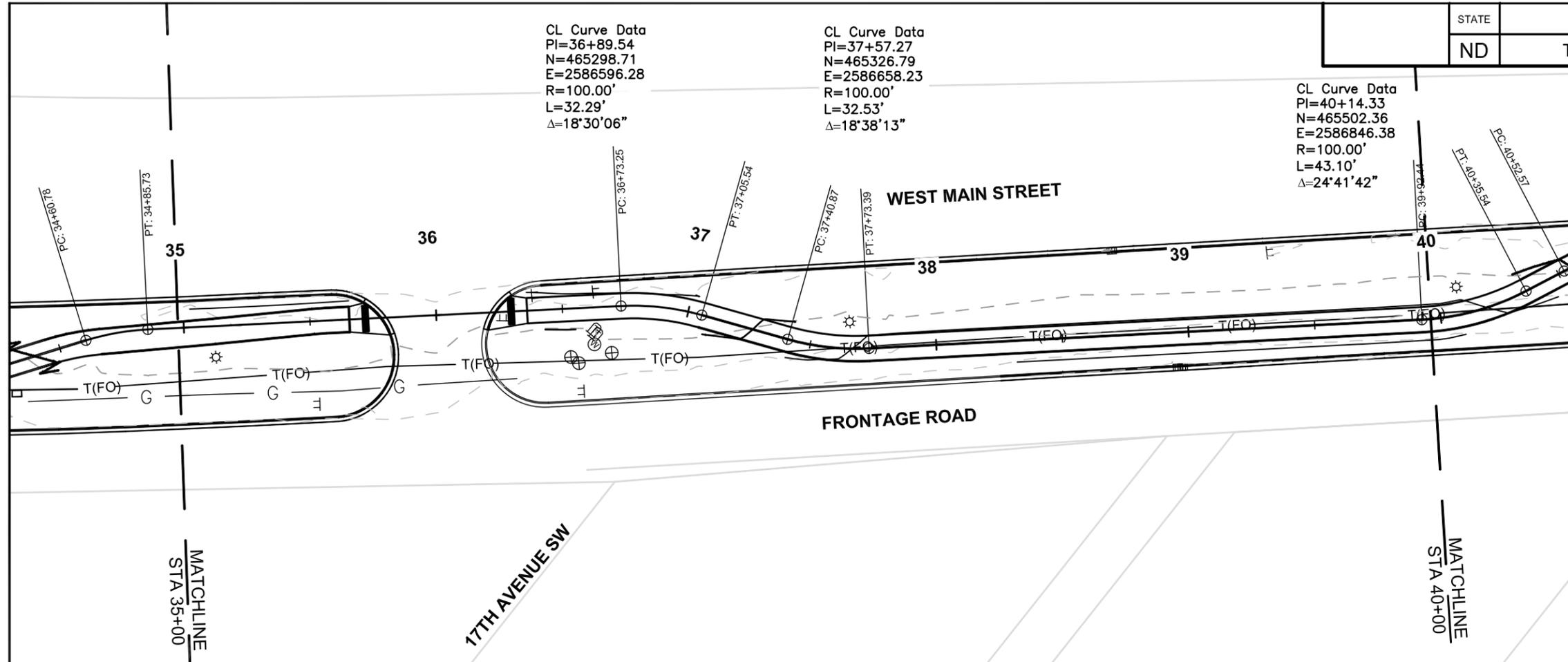
Plan & Profile
 Main Street W
 24th Ave SW to 11th Ave SW

CL Curve Data
 PI=36+89.54
 N=465298.71
 E=2586596.28
 R=100.00'
 L=32.29'
 Δ=18°30'06"

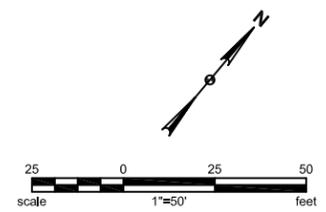
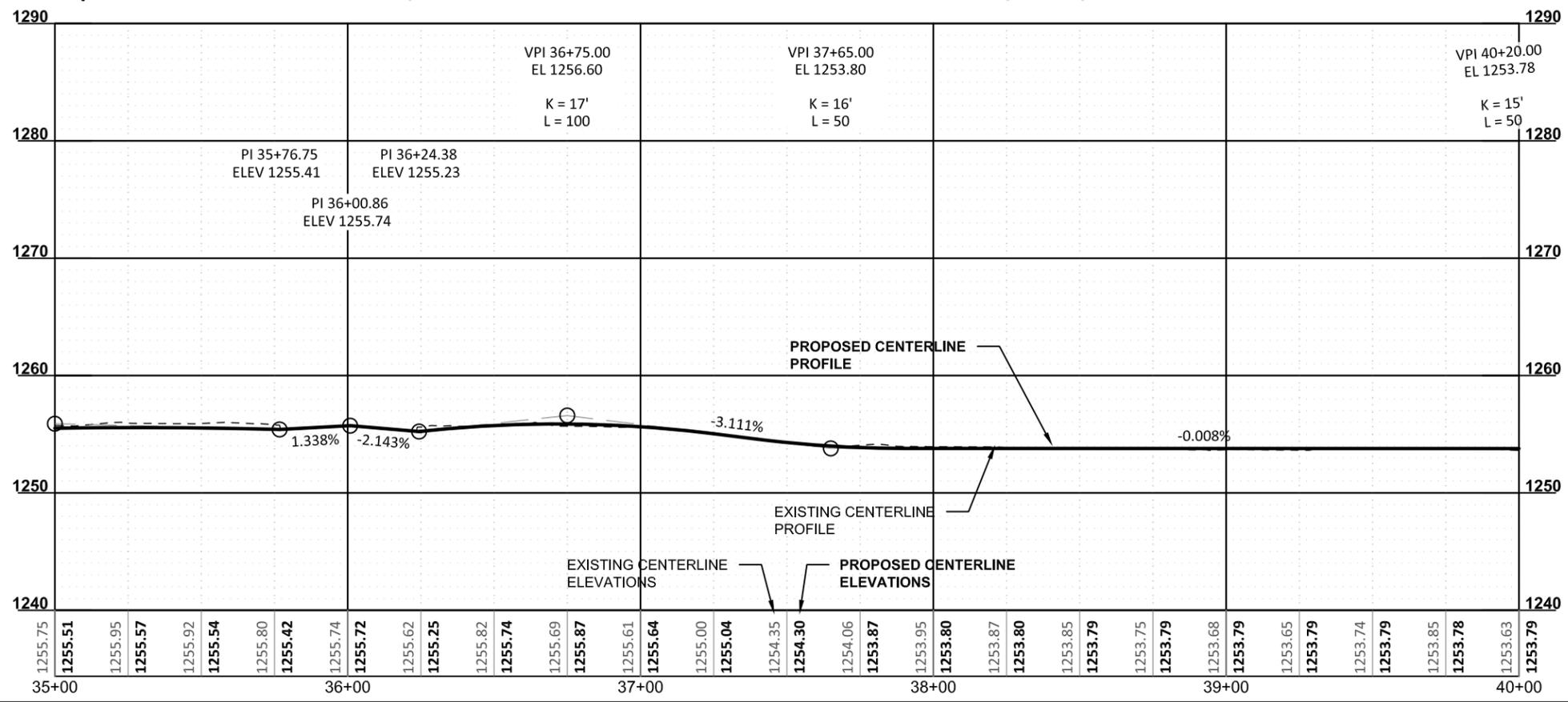
CL Curve Data
 PI=37+57.27
 N=465326.79
 E=2586658.23
 R=100.00'
 L=32.53'
 Δ=18°38'13"

CL Curve Data
 PI=40+14.33
 N=465502.36
 E=2586846.38
 R=100.00'
 L=43.10'
 Δ=24°41'42"

REMOVAL OF CURB & GUTTER	
STA. 35+77	17.0 LF
STA. 36+24	17.1 LF
	34.1 LF
AGGREGATE BASE COURSE CL 5	
STA. 35+00 to 40+00	95.5 CY
COMMERCIAL GRADE HOT MIX ASPHALT	
STA. 35+00 to 40+00	81.2 TON
CURB & GUTTER-TYPE I	
STA. 35+77	17.0 LF
STA. 36+24	17.1 LF
	34.1 LF
SIDEWALK CONCRETE 4IN	
STA. 35+77	15.3 SY
STA. 36+24	15.2 SY
	30.5 SY
DETECTABLE WARNING PANELS	
STA. 35+77	20 SY
STA. 36+24	20 SY
	40 SY



COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET



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Plan & Profile
 Main Street W
 24th Ave SW to 11th Ave SW

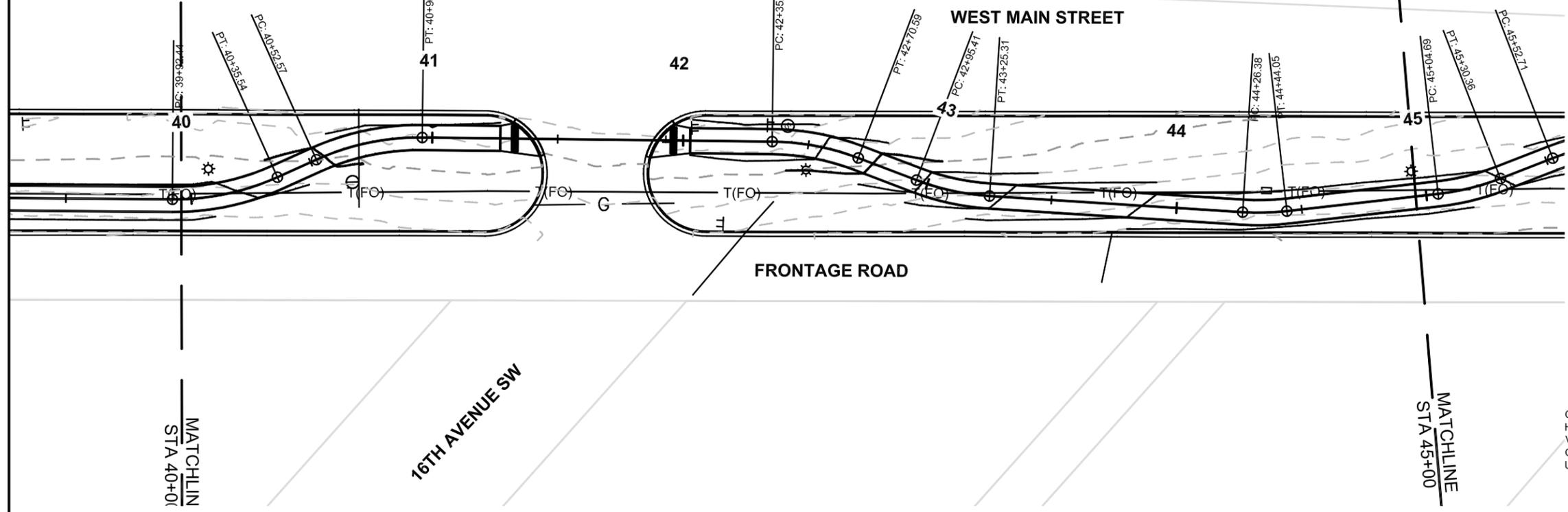
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	60	7

CL Curve Data
 PI=40+74.64
 N=465558.79
 E=2586869.51
 R=100.00'
 L=43.45'
 Δ=24°53'37"

CL Curve Data
 PI=42+53.22
 N=465680.65
 E=2587001.01
 R=100.00'
 L=35.10'
 Δ=20°06'44"

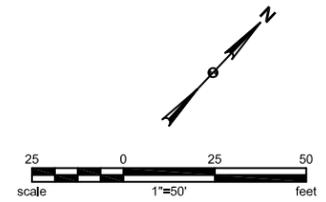
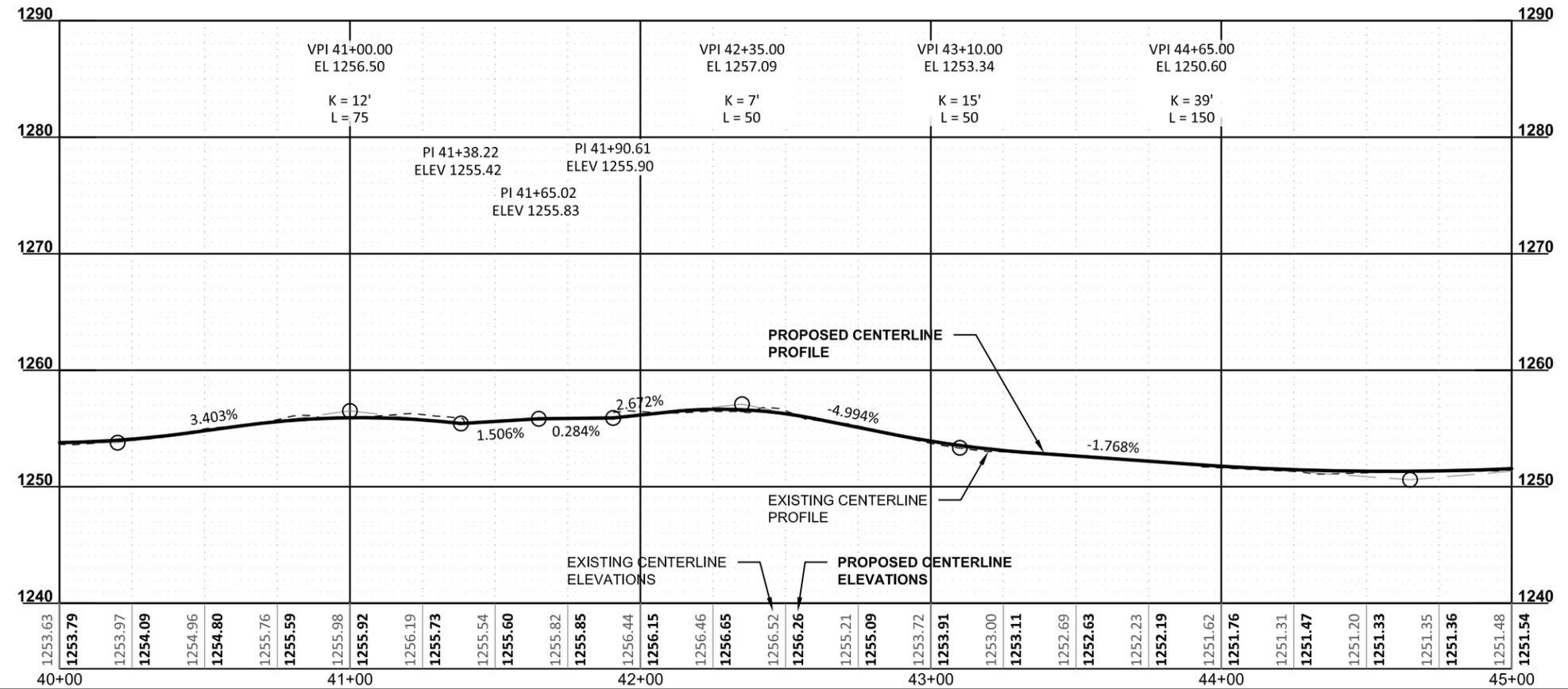
CL Curve Data
 PI=43+10.47
 N=465702.89
 E=2587054.16
 R=100.00'
 L=29.90'
 Δ=17°08'03"

CL Curve Data
 PI=44+35.24
 N=465782.97
 E=2587150.13
 R=100.00'
 L=17.67'
 Δ=10°07'30"



REMOVAL OF CURB & GUTTER	
STA. 41+38	17.2 LF
STA. 41+91	17.2 LF
	34.4 LF
AGGREGATE BASE COURSE CL 5	
STA. 40+00 to 45+00	94.3 CY
COMMERCIAL GRADE HOT MIX ASPHALT	
STA. 40+00 to 45+00	80.3 TON
CURB & GUTTER-TYPE I	
STA. 41+38	17.2 LF
STA. 41+91	17.2 LF
	34.4 LF
SIDEWALK CONCRETE 4IN	
STA. 41+38	15.2 SY
STA. 41+91	15.2 SY
	30.4 SY
DETECTABLE WARNING PANELS	
STA. 41+38	20 SY
STA. 41+91	20 SY
	40 SY

COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET



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Plan & Profile

Main Street W

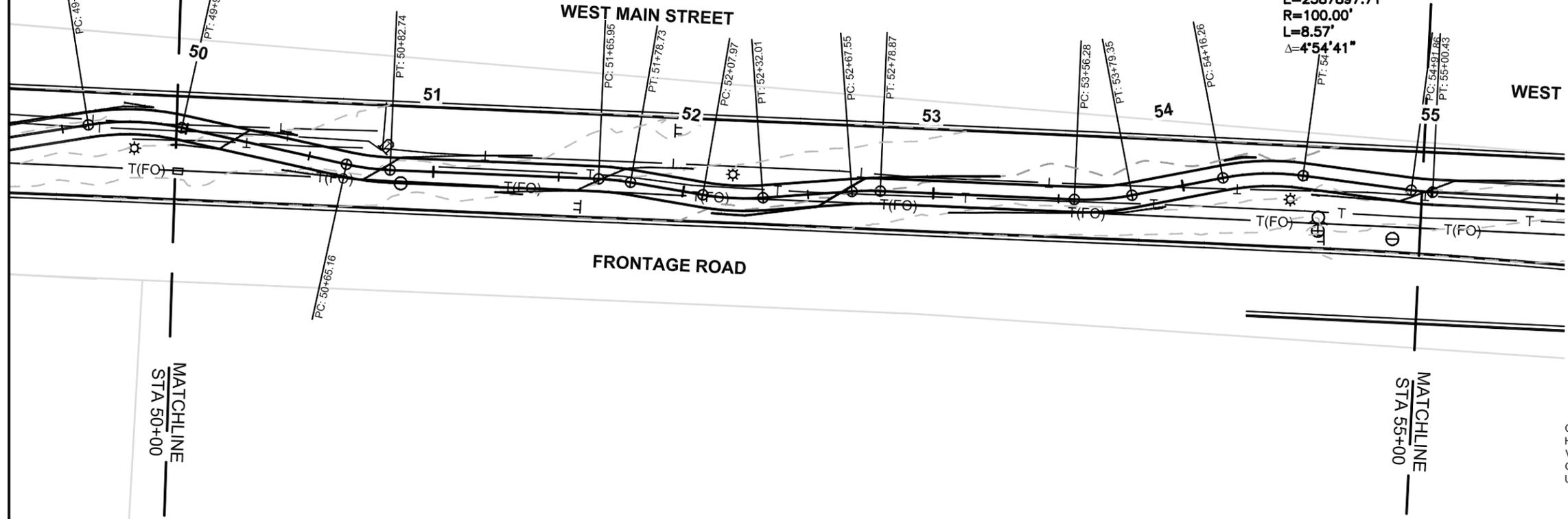
24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	60	9

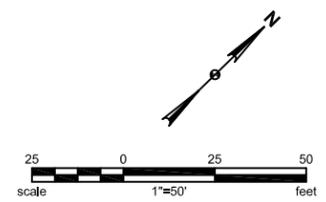
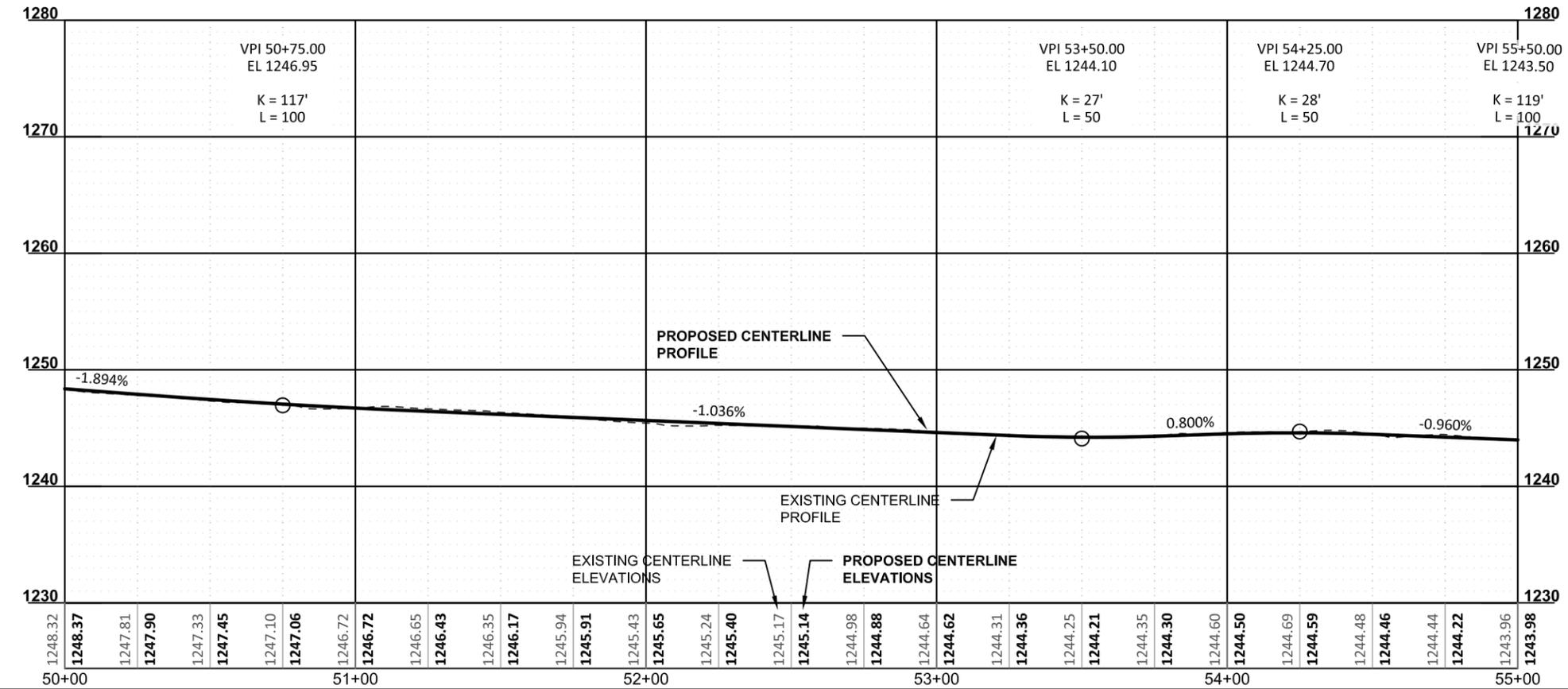
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AGGREGATE BASE COURSE CL 5
STA. 50+00 to 55+00 111.1 CY

COMMERCIAL GRADE HOT MIX ASPHALT
STA. 50+00 to 55+00 92.6 TON



COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
HORIZ. DATUM: NAD 83 (CORS 96) OPUS
VERT. DATUM: NAVD 88
GEOID MODEL: GEOID 09
UNITS: INTERNATIONAL FEET



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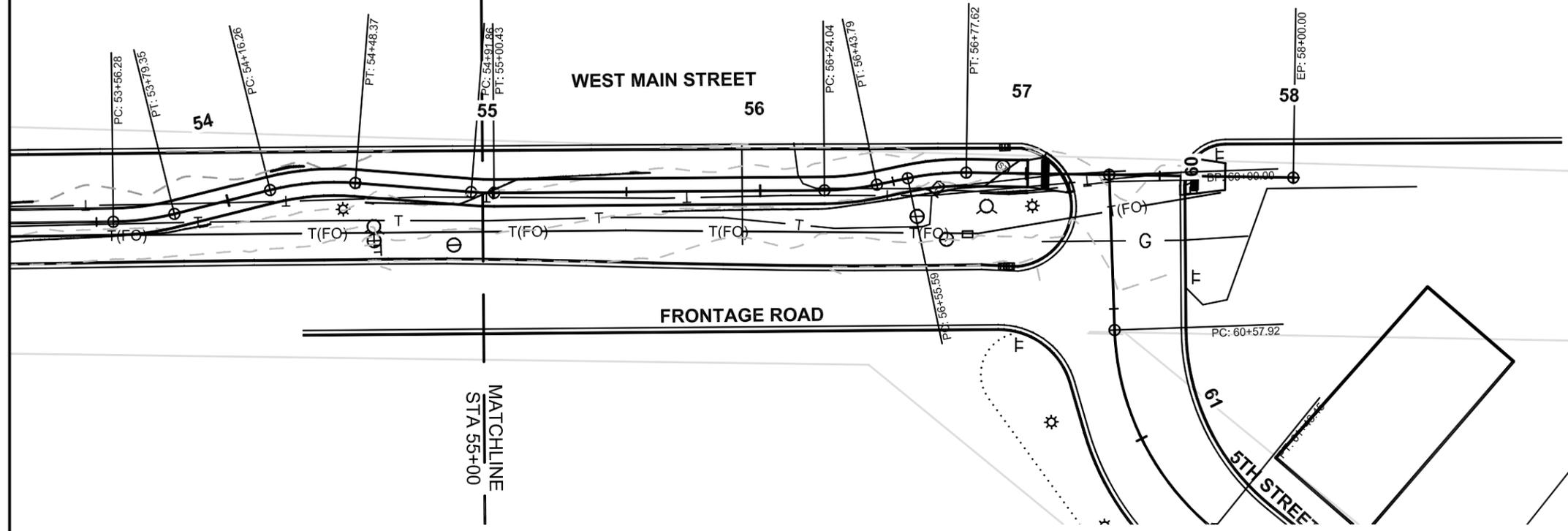
Plan & Profile

Main Street W
24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	60	10

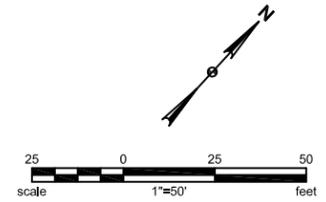
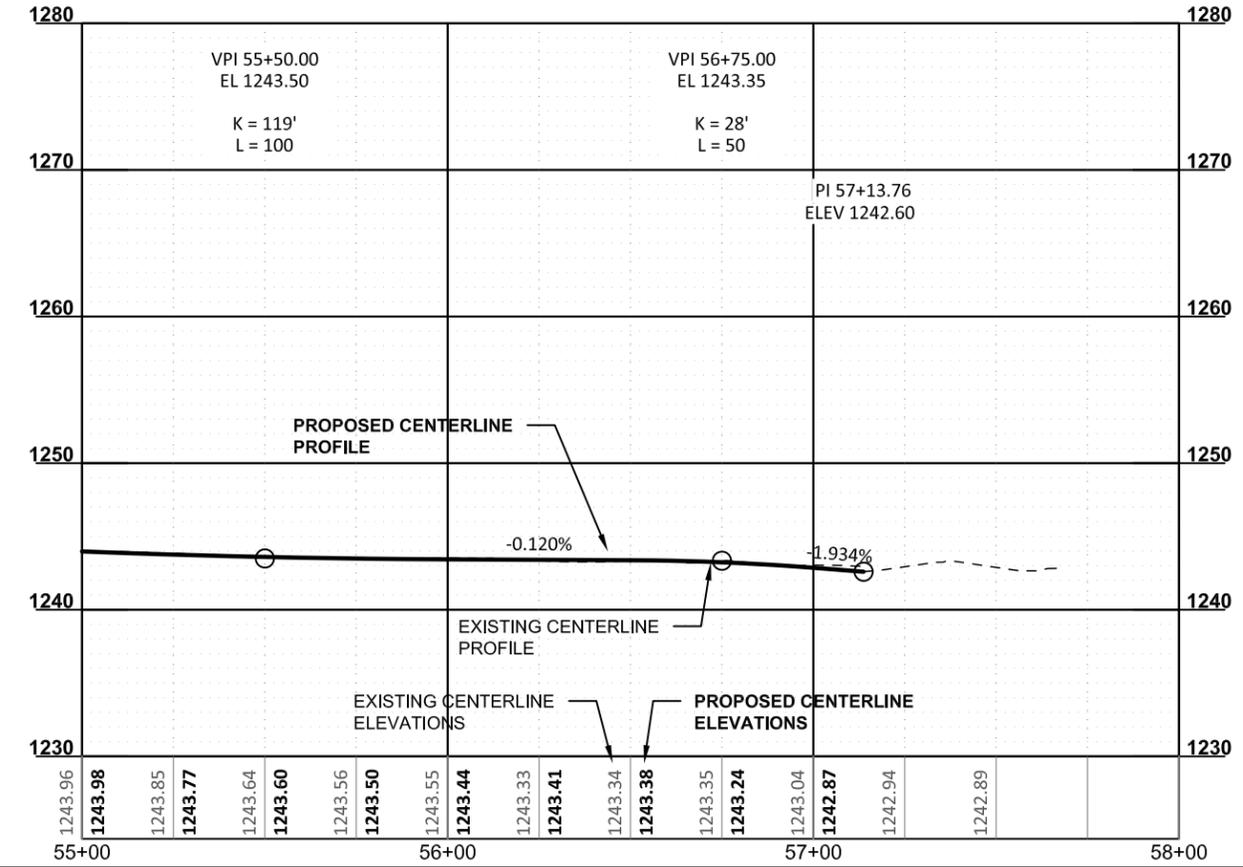
CL Curve Data
 PI=56+33.95
 N=466614.50
 E=2587998.24
 R=100.00'
 L=19.75'
 Δ=11°18'52"

CL Curve Data
 PI=56+66.65
 N=466641.17
 E=2588017.28
 R=100.00'
 L=22.03'
 Δ=12°37'28"



REMOVAL OF CURB & GUTTER	
STA. 57+13	16.0 LF
STA. 57+60	16.0 LF
	32.0 LF
AGGREGATE BASE COURSE CL 5	
STA. 55+00 to 58+00	44.5 CY
COMMERCIAL GRADE HOT MIX ASPHALT	
STA. 55+00 to 58+00	38.7 TON
CURB & GUTTER-TYPE I	
STA. 57+13	16.0 LF
STA. 57+60	16.0 LF
	32.0 LF
SIDEWALK CONCRETE 4IN	
STA. 57+13	16.9 SY
STA. 57+60	16.9 SY
	33.8 SY
DETECTABLE WARNING PANELS	
STA. 57+13	20 SY
STA. 57+60	20 SY
	40 SY

COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET

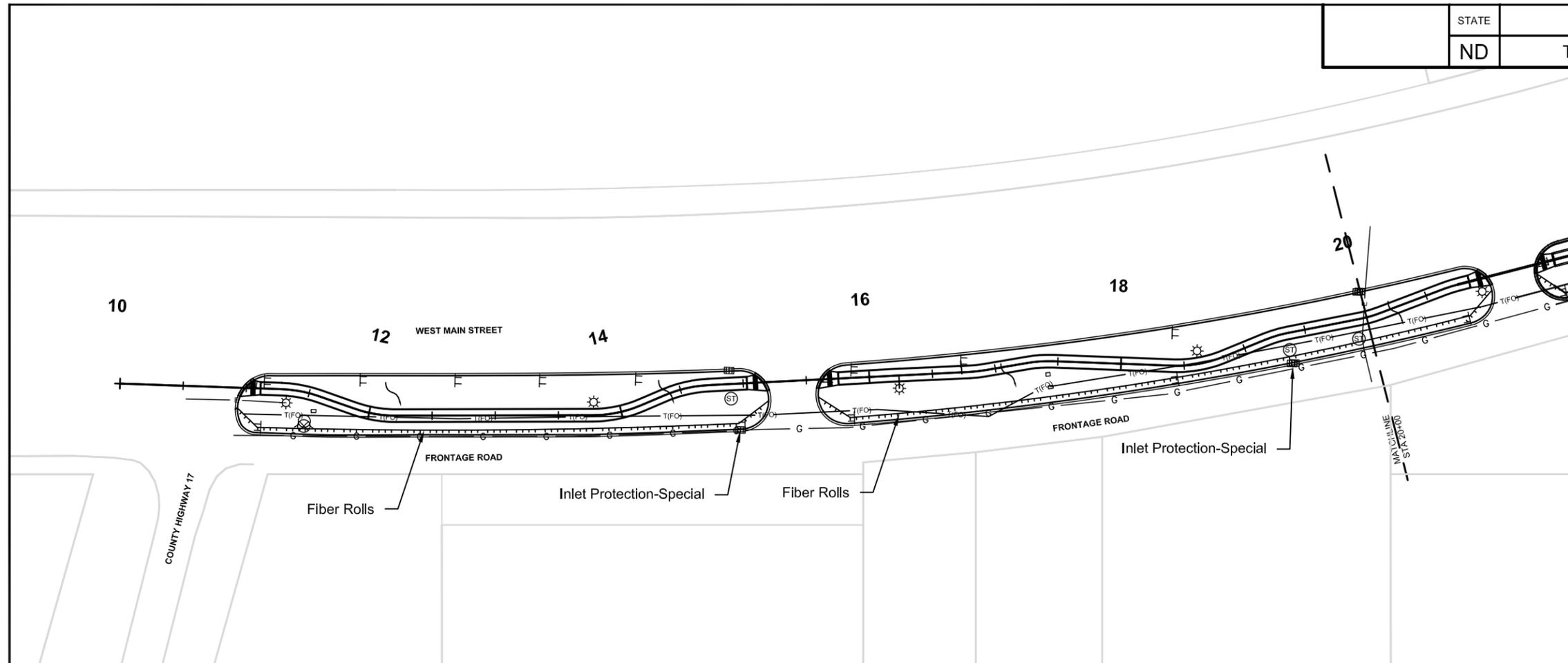


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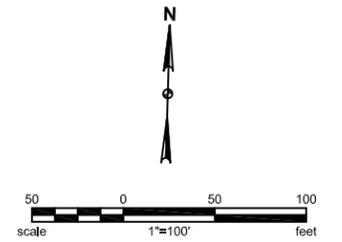
Plan & Profile
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	76	1

FIBER ROLLS 12IN	
STA. 10+00 to 20+00	880 LF
REMOVE FIBER ROLLS 12IN	
STA. 10+00 to 20+00	880 LF
INLET PROTECTION-SPECIAL	
STA. 14+96	1 EA
STA. 19+37	1 EA
	2 EA
REMOVE INLET PROTECTION-SPECIAL	
STA. 14+96	1 EA
STA. 19+37	1 EA
	2 EA



Fiber Rolls
 Flow Arrow

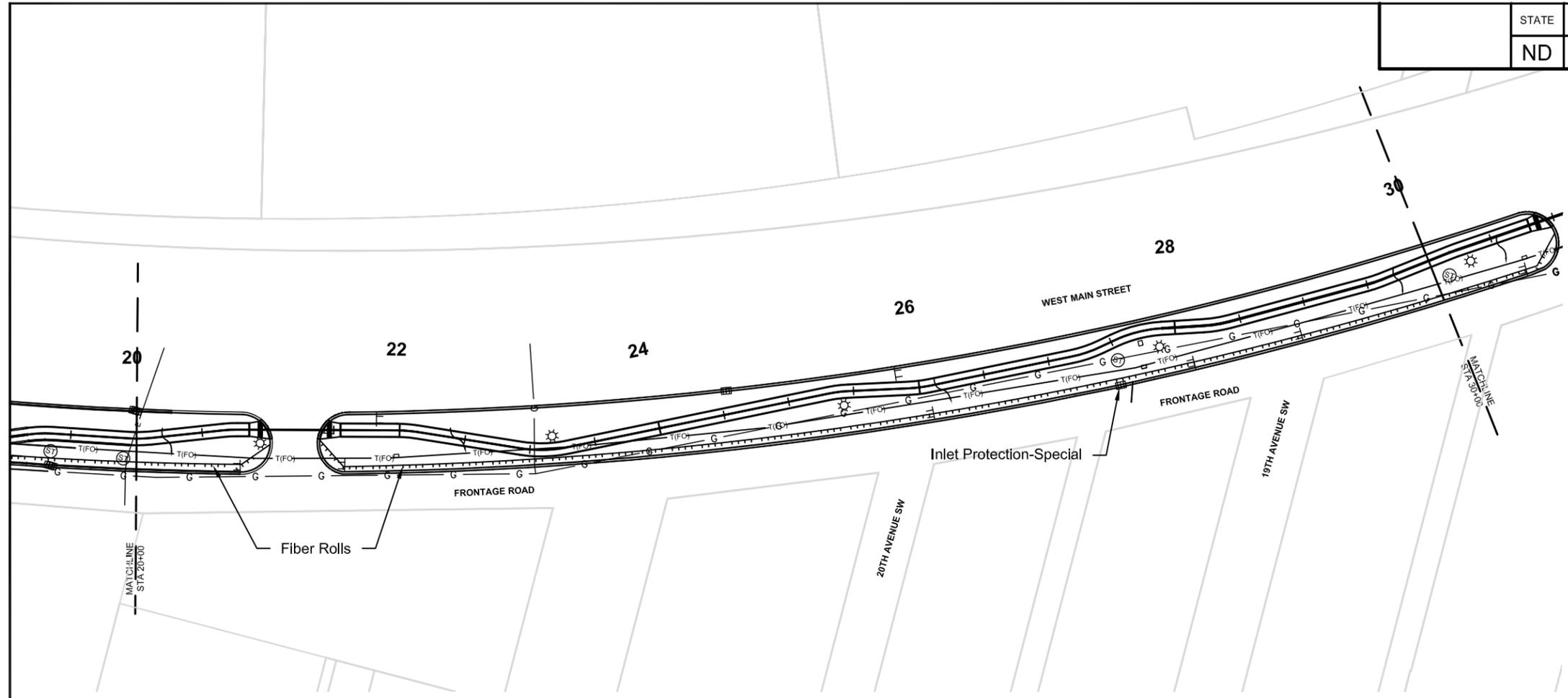


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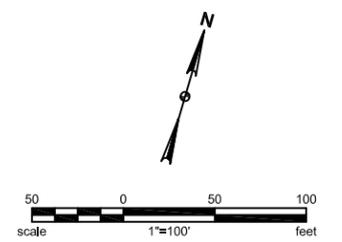
Temporary Sediment and Erosion Control
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	76	2

FIBER ROLLS 12IN	STA. 20+00 to 30+00	979 LF
REMOVE FIBER ROLLS 12IN	STA. 20+00 to 30+00	979 LF
INLET PROTECTION-SPECIAL	STA. 27+42	1 EA
REMOVE INLET PROTECTION-SPECIAL	STA. 27+42	1 EA



Fiber Rolls
 Flow Arrow



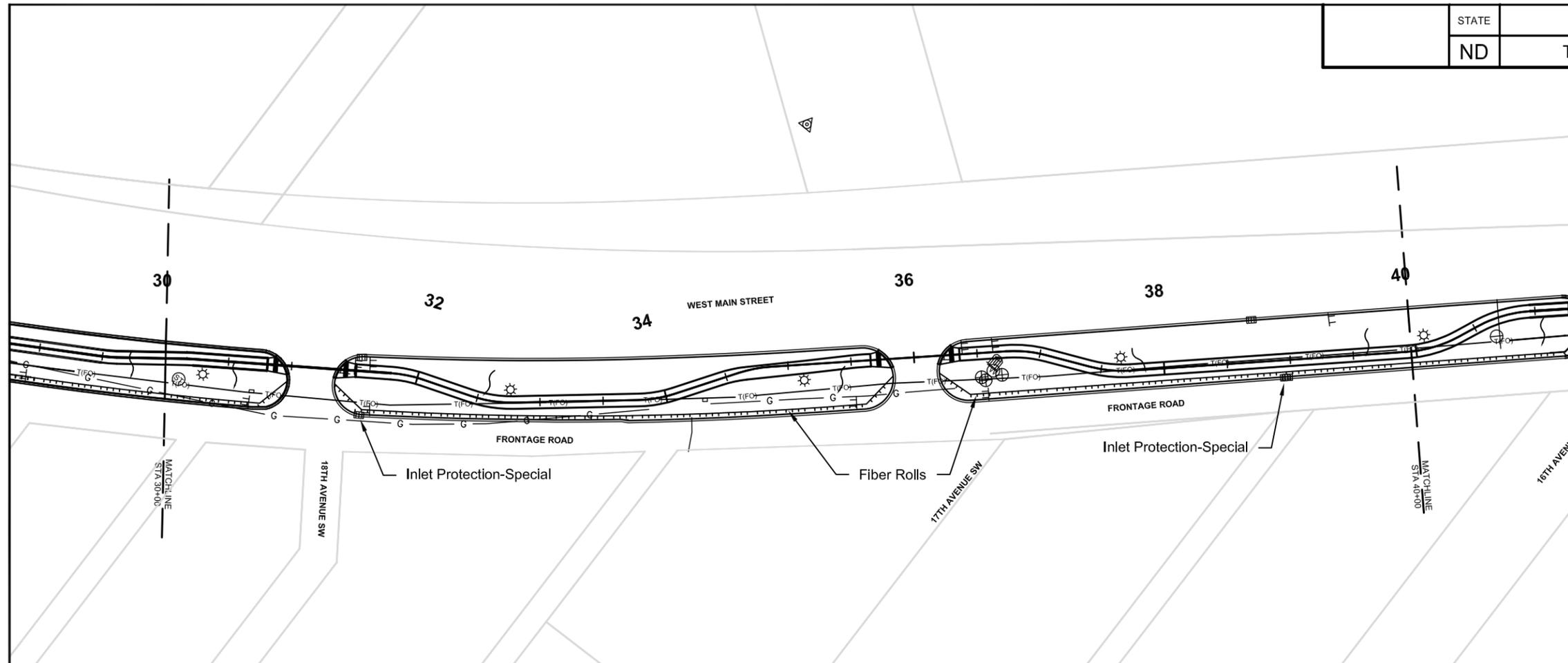
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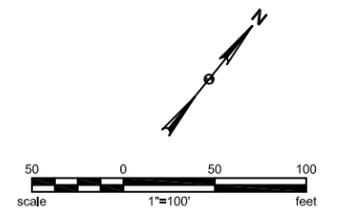
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	76	3

FIBER ROLLS 12IN	
STA. 30+00 to 40+00	943 LF
REMOVE FIBER ROLLS 12IN	
STA. 30+00 to 40+00	943 LF
INLET PROTECTION-SPECIAL	
STA. 31+56	1 EA
STA. 38+96	1 EA
	2 EA
REMOVE INLET PROTECTION-SPECIAL	
STA. 31+56	1 EA
STA. 38+96	1 EA
	2 EA



Fiber Rolls
 Flow Arrow



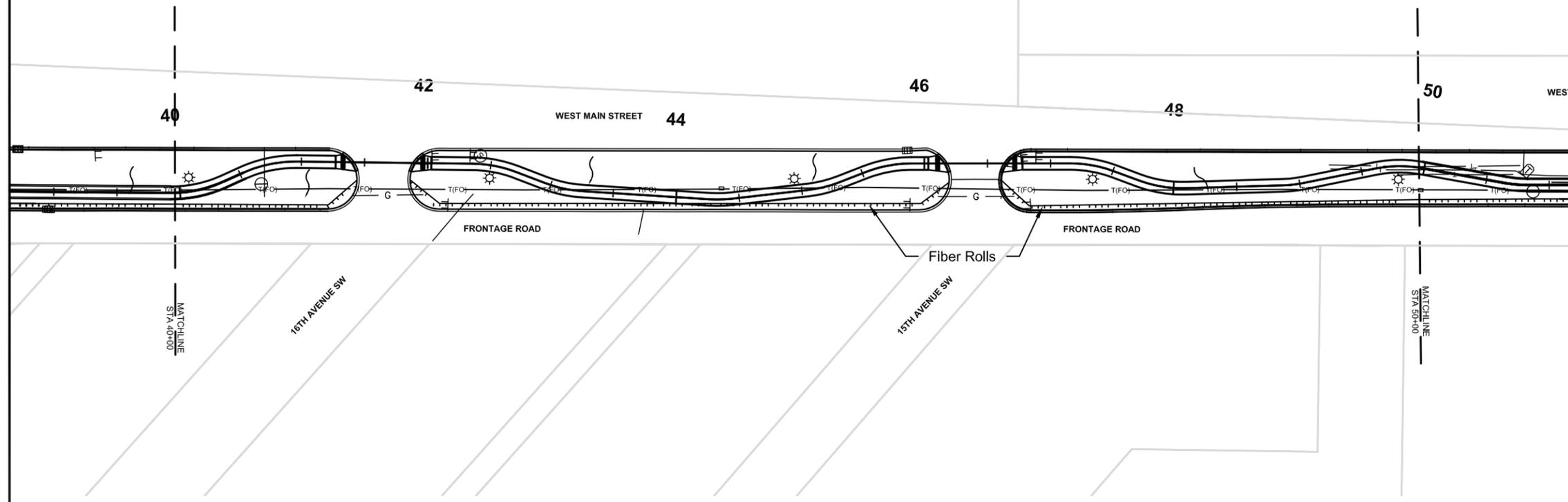
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Temporary Sediment and Erosion Control

 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	76	4

FIBER ROLLS 12IN	928 LF
STA. 40+00 to 50+00	
REMOVE FIBER ROLLS 12IN	928 LF
STA. 40+00 to 50+00	



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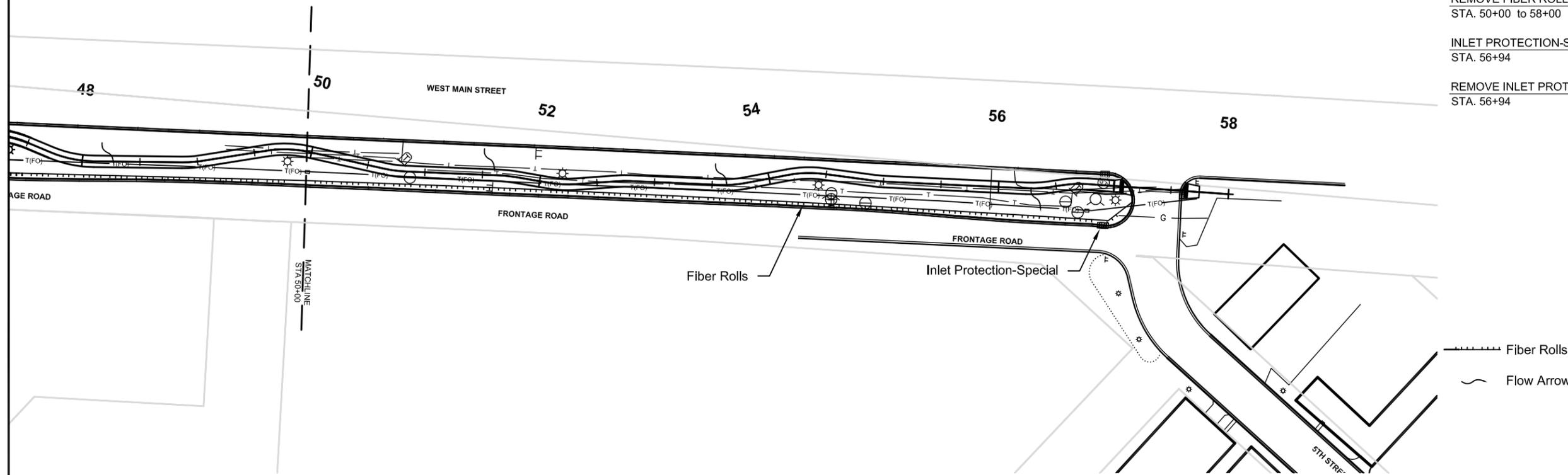
Temporary Sediment and Erosion Control

Main Street W

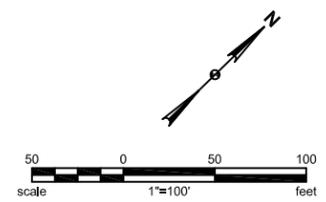
24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	76	5

FIBER ROLLS 12IN STA. 50+00 to 58+00	723 LF
REMOVE FIBER ROLLS 12IN STA. 50+00 to 58+00	723 LF
INLET PROTECTION-SPECIAL STA. 56+94	1 EA
REMOVE INLET PROTECTION-SPECIAL STA. 56+94	1 EA



Fiber Rolls
 Flow Arrow



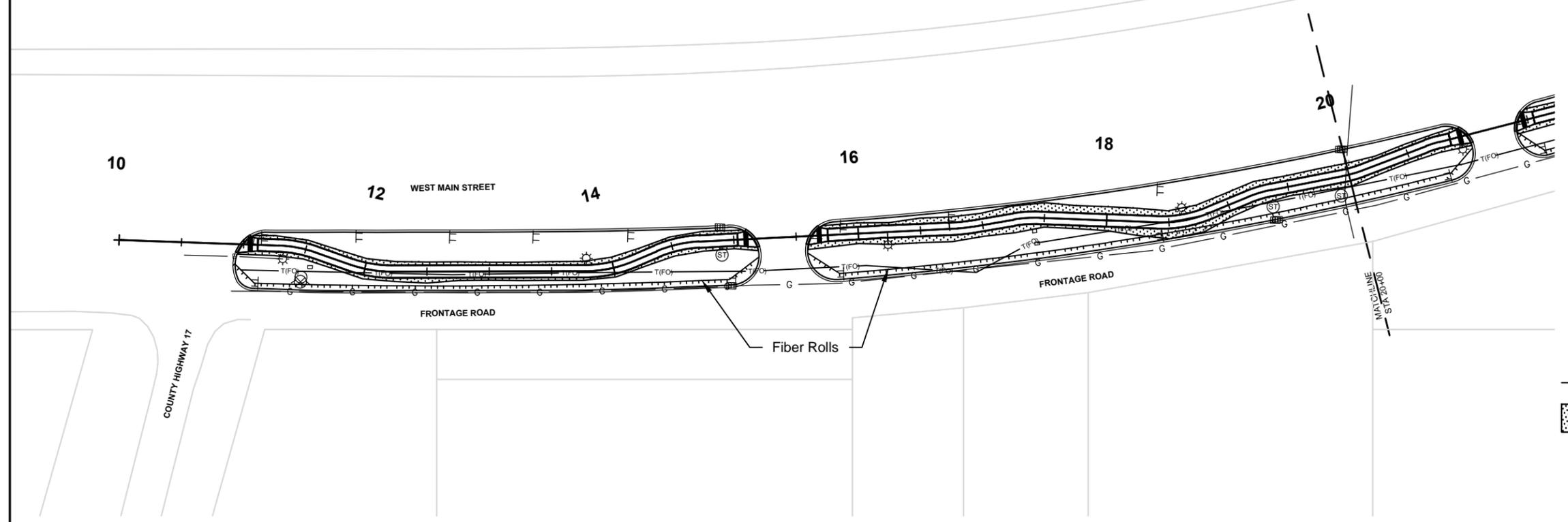
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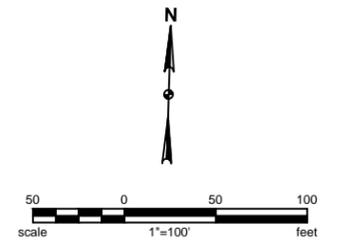
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	77	1

FIBER ROLLS 12IN
 STA. 10+00 to 20+00 880 LF



- Fiber Rolls
- ▨ Permanent Seeding



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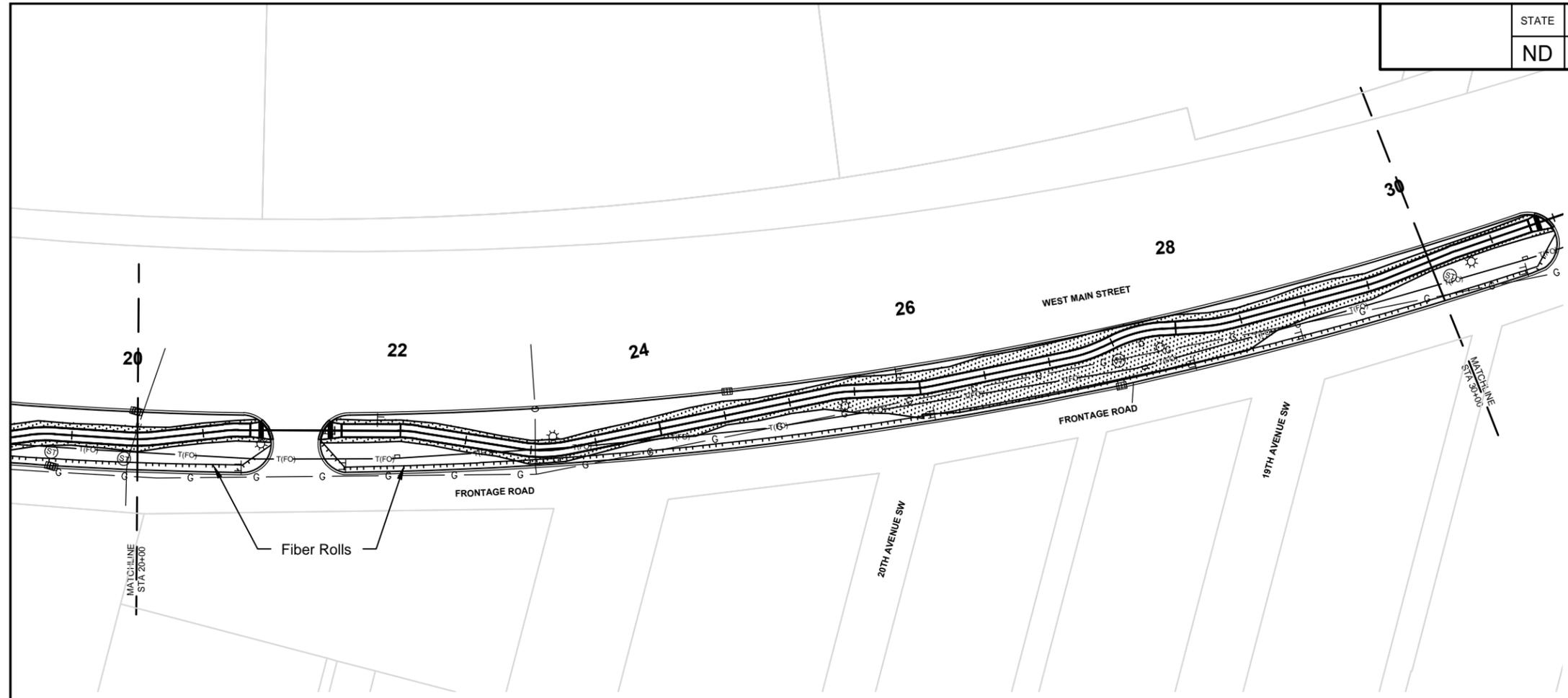
Permanent Sediment and Erosion Control

Main Street W

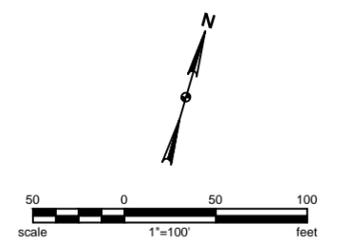
24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	77	2

FIBER ROLLS 12IN
 STA. 20+00 to 30+00 979 LF



- Fiber Rolls
- ▨ Permanent Seeding



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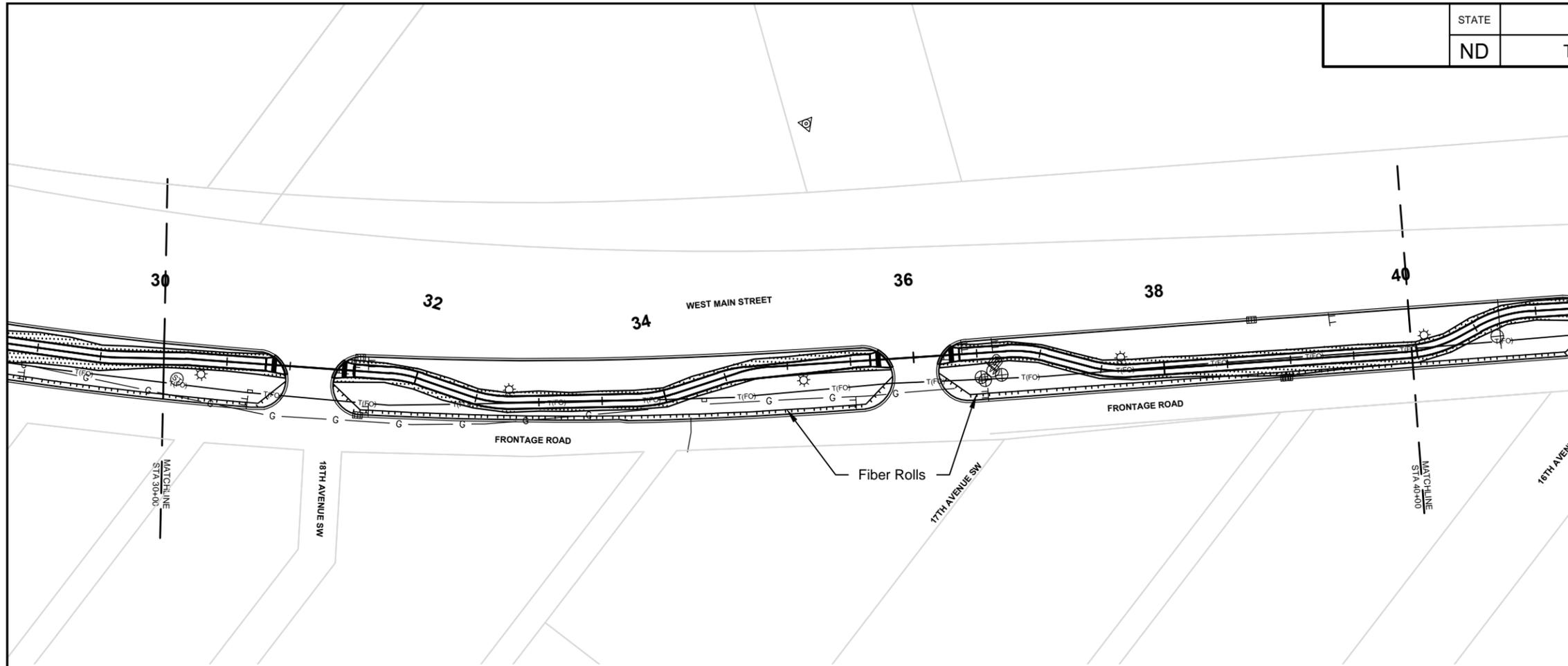
Permanent Sediment and Erosion Control

Main Street W

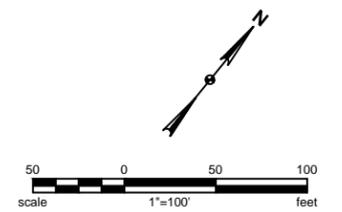
24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	77	3

FIBER ROLLS 12IN
 STA. 30+00 to 40+00 943 LF



----- Fiber Rolls
 [Stippled Box] Permanent Seeding



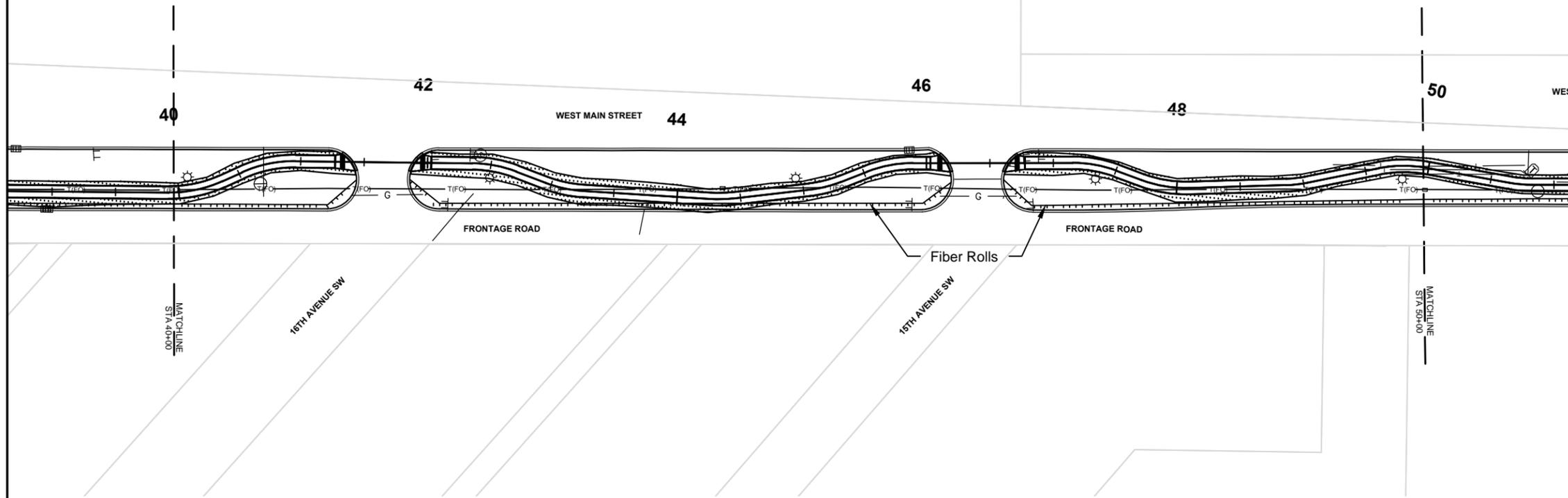
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Permanent Sediment and Erosion Control

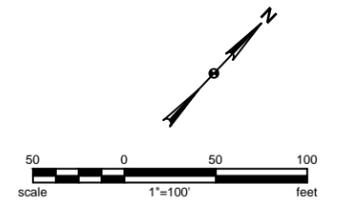
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	77	4

FIBER ROLLS 12IN
 STA. 40+00 to 50+00 928 LF



- Fiber Rolls
- Permanent Seeding



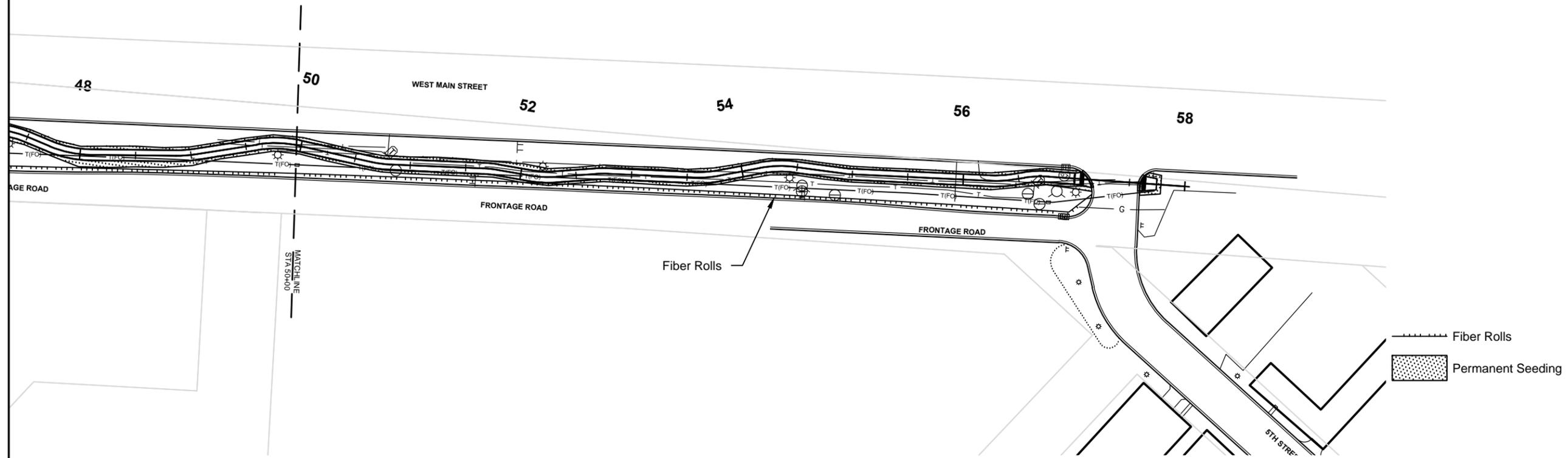
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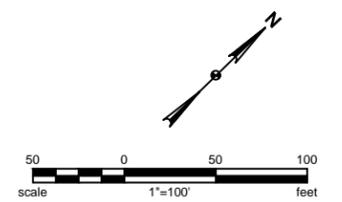
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	77	5

FIBER ROLLS 12IN
 STA. 50+00 to 58+00 723 LF



Fiber Rolls
 Permanent Seeding



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Permanent Sediment and Erosion Control

 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB-TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)	-	6	-
G20-1a-60	60"x24"	ROAD WORK NEXT ___ MILES	-	34	-
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)	-	26	-
G20-2a-48	48"x24"	END ROAD WORK	-	19	-
G20-4-36	36"x18"	PILOT CAR FOLLOW ME	-	18	-
G20-10-108	108"x48"	CONTRACTOR SIGN	-	64	-
G20-50a-72	72"x36"	ROAD WORK NEXT ___ MILES RT & LT ARROWS	-	37	-
G20-52a-72	72"x24"	ROAD WORK NEXT ___ MILES RT or LT ARROW	-	30	-
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT	-	59	-
M1-1-36	36"x36"	ROUTE MARKER (Post and installation only)	-	10	-
M1-4-24	24"x24"	ROUTE MARKER (Post and installation only)	-	10	-
M1-5-24	24"x24"	ROUTE MARKER (Post and installation only)	-	10	-
M3-1-24	24"x12"	NORTH (Mounted on route marker post)	-	7	-
M3-2-24	24"x12"	EAST (Mounted on route marker post)	-	7	-
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)	-	7	-
M3-4-24	24"x12"	WEST (Mounted on route marker post)	-	7	-
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)	-	7	-
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT	-	15	-
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT	-	23	-
M5-1-21	21"x15"	ARROW AHD AND RT or LT (Mounted on route marker post)	-	7	-
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)	-	7	-
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)	-	7	-
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)	-	7	-
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)	-	7	-
R1-1-48	48"x48"	STOP	-	32	-
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back	-	5	-
R1-2-60	60"x60"	YIELD	-	29	-
R2-1-48	48"x60"	SPEED LIMIT ___	-	39	-
R2-1a-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	-	10	-
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT	-	35	-
R4-1-48	48"x60"	DO NOT PASS	-	39	-
R4-7-48	48"x60"	KEEP RIGHT SYMBOL	-	39	-
R5-1-48	48"x48"	DO NOT ENTER	-	35	-
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT	-	13	-
R7-1-12	12"x18"	NO PARKING	-	11	-
R10-6-24	24"x36"	STOP HERE ON RED	-	16	-
R11-2-48	48"x30"	ROAD CLOSED	-	28	-
R11-2a-48	48"x30"	STREET CLOSED	-	28	-
R11-3a-60	60"x30"	ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY	-	31	-
R11-3c-60	60"x30"	STREET CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY	-	31	-
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC	-	31	-
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW	-	35	-
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW	-	35	-
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW	-	35	-
W1-6-48	48"x24"	LARGE ARROW	-	26	-
W3-1a-48	48"x48"	STOP AHEAD SYMBOL	-	35	-
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL	-	35	-
W3-4-48	48"x48"	BE PREPARED TO STOP	-	35	-
W3-5-48	48"x48"	SPEED REDUCTION AHEAD	-	35	-
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL	-	35	-
W5-1-48	48"x48"	ROAD NARROWS	-	35	-
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE	-	35	-
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW	-	35	-
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL	-	35	-
W8-1-48	48"x48"	BUMP	-	35	-
W8-3-48	48"x48"	PAVEMENT ENDS	-	35	-
W8-7-48	48"x48"	LOOSE GRAVEL	-	35	-
W8-9a-48	48"x48"	SHOULDER DROP-OFF	-	35	-
W8-11-48	48"x48"	UNEVEN LANES	-	35	-
W8-12-48	48"x48"	NO CENTER STRIPE	-	35	-
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY	-	35	-
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or ___ FT.	-	35	-
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or ___ FT.	-	35	-
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY	-	35	-
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL	-	35	-
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL	-	35	-
W13-1-24	24"x24"	___ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)	-	11	-
W13-4-48	48"x60"	RAMP ARROW	-	39	-
W14-3-48	48"x36"	NO PASSING ZONE	-	23	-
W20-1-48	48"x48"	ROAD WORK AHEAD or ___ FT or ___ MILE	8	35	280
W20-2-48	48"x48"	DETOUR AHEAD or ___ FT	-	35	-
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or ___ FT.	-	35	-
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or ___ FT.	-	35	-
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or ___ FT.	-	35	-
W20-7a-48	48"x48"	FLAGGING SYMBOL	-	35	-

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB-TOTAL
W20-7k-24	24"x18"	___ FEET (Mounted on warning sign post)	-	10	-
W20-8-48	48"x48"	STREET CLOSED	-	35	-
W20-51-48	48"x48"	EQUIPMENT WORKING	-	35	-
W20-52-54	54"x12"	NEXT ___ MILES (Mounted on warning sign post)	-	12	-
W21-1a-48	48"x48"	MEN WORKING SYMBOL	-	35	-
W21-2-48	48"x48"	FRESH OIL	-	35	-
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or ___ FT	-	35	-
W21-5-48	48"x48"	SHOULDER WORK	-	35	-
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED	-	35	-
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or ___ FT.	-	35	-
W21-6a-48	48"x48"	SURVEY CREW AHEAD	-	35	-
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or ___ FT.	-	35	-
W21-51-48	48"x48"	MATERIAL ON ROADWAY	-	35	-
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK	-	35	-
R9-9-12	48"x30"	SIDEWALK CLOSED	-	12	-

SPEC & CODE

704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	280
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SPEC & CODE	DESCRIPTION	UNIT	PARTICIPATING QUANTITY
704-0100	FLAGGING	MHR	-
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	-
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	-
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	-
704-1050	TYPE I BARRICADES	EACH	-
704-1051	TYPE II BARRICADES	EACH	-
704-1052	TYPE III BARRICADES	EACH	14
704-1060	DELINEATOR DRUMS	EACH	-
704-1065	TRAFFIC CONES	EACH	-
704-1067	TUBULAR MARKERS	EACH	84
704-1070	DELINEATOR	EACH	-
704-1072	FLEXIBLE DELINEATORS	EACH	-
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	-
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	-
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	-
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	-
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	-
704-1185	PILOT CAR	HR	-
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	-
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	-
762-0200	RAISED PAVEMENT MARKERS	EACH	-
762-0405	SHORT TERM 4IN BROKEN LINE-PNT TAPE OR RSD MRK	LF	-
762-0410	SHORT TERM 4IN LINE NPZ-PN TP OR RS MRK	LF	-
762-1500	OBLITERATION OF PVMT MK	SF	-
772-2110	FLASHING BEACON - POST MOUNTED	EACH	-

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Traffic Control Devices List

Main Street W
24th Ave SW to 11th Ave SW

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-2-094(136)928	100	2

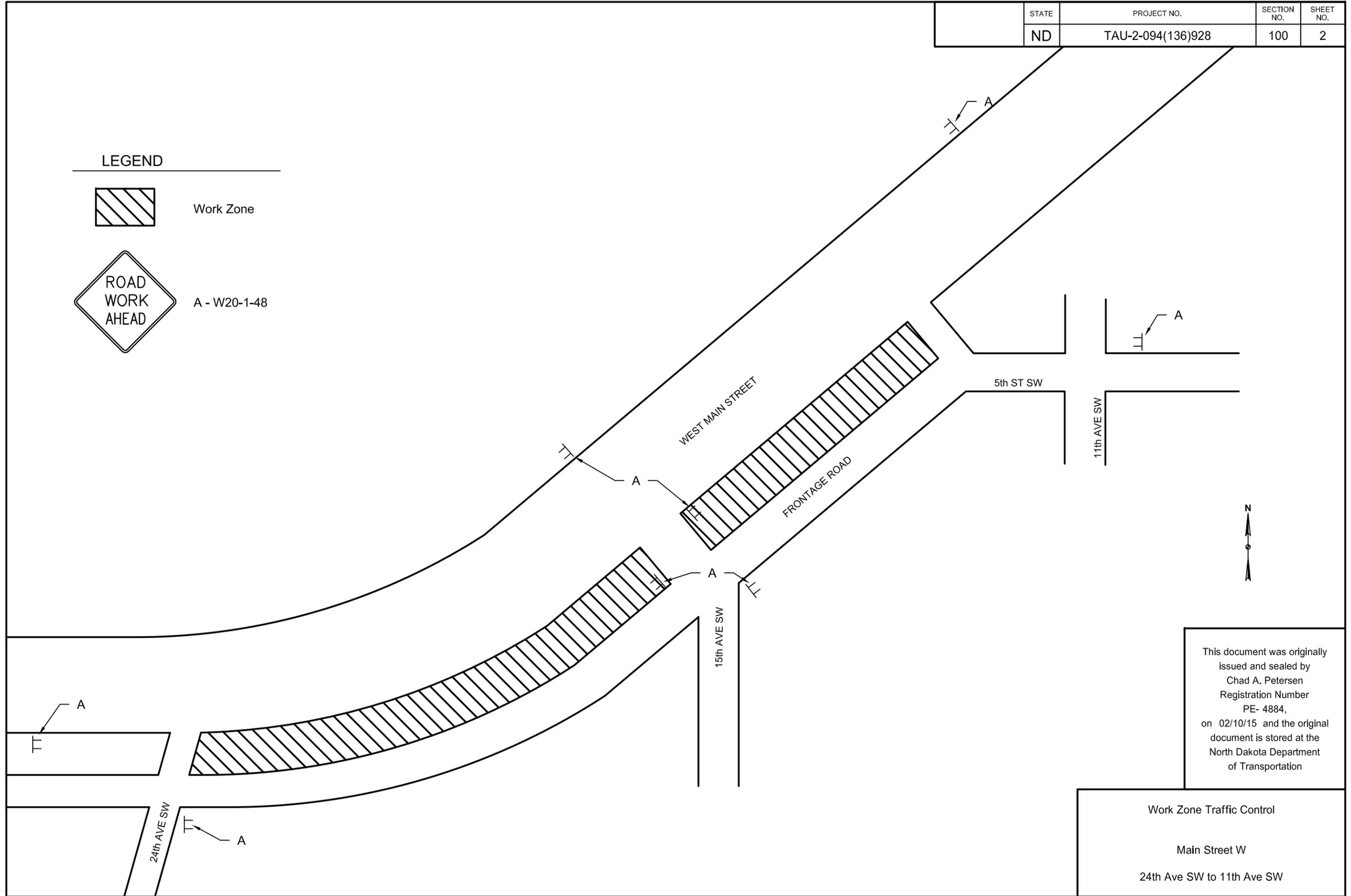
LEGEND



Work Zone



A - W20-1-48



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Work Zone Traffic Control
Main Street W
24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	TAU-2-094(136)928	110	1

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Support Size	Max Post Len LF	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF			1st LF	2nd LF	3rd LF	4th LF								
11+00 Rt	SS 2E		12.8	5.2	10.5				2.5 x 2.5 12 ga	11.8					1	4	3 x 3 7 ga					
11+15 Lt	D11-1		3.5		6.2				2 x 2 12 ga	14.7					1	4	2.25 x 2.25 12 ga					
11+15 Rt	D11-1		3.5		6.2				2 x 2 12 ga	14.7					1	4	2.25 x 2.25 12 ga					
15+62 Rt	R1-1	1		5.2	9.7				2 x 2 12 ga	10.5					1	4	2.25 x 2.25 12 ga					
21+43 Rt	R1-1	1		5.2	9.7				2 x 2 12 ga	10.5					1	4	2.25 x 2.25 12 ga					
31+39 Rt	SS 2E		12.8	5.2	10.5				2.5 x 2.5 12 ga	11.8					1	4	3 x 3 7 ga					
36+24 Rt	SS 2E		12.8	5.2	10.5				2.5 x 2.5 12 ga	11.8					1	4	3 x 3 7 ga					
41+92 Rt	SS 2E		12.8	5.2	10.5				2.5 x 2.5 12 ga	11.8					1	4	3 x 3 7 ga					
45+98 Lt	D11-1	103	3.8		6.5				2 x 2 12 ga	14.8					1	4	2.25 x 2.25 12 ga					
46+65 Rt	SS 2E		12.8	5.2	11.2				2.5 x 2.5 12 ga	13.9					1	4	3 x 3 7 ga					
46+75 Rt	D11-1	103	3.8		6.5				2 x 2 12 ga	14.8					1	4	2.25 x 2.25 12 ga					
56+69 Rt	R3-17	103	3.8		6.5				2 x 2 12 ga	14.8					1	4	2.25 x 2.25 12 ga					
56+96 Lt	D11-1		3.5		6.2				2 x 2 12 ga	14.7					1	4	2.25 x 2.25 12 ga					
57+03 Lt	R1-1		1.9																		Mount on Light Standard	
57+65 Rt	SS 2E		11.2	5.2	10.5				2.5 x 2.5 12 ga	11.8					1	4	3 x 3 7 ga					
60+41 Lt	D11-1	103	3.8		9.4				2 x 2 12 ga	14.8					1	4	2.25 x 2.25 12 ga					
60+84 Rt	R3-17			4.3																	Mount on Light Standard	
61+72 Rt	R8-3a			3.0																	Mount on Light Standard	
62+34 Lt	R8-3a			3.0																	Mount on Light Standard	
63+48 Lt	R8-3a			3.0																	Mount on Light Standard	
63+50 Rt	R8-3a			3.0																	Mount on Light Standard	
64+75 Rt	R8-3a			3.0																	Mount on Light Standard	
65+06 Lt	R8-3a	8		3.0	9.2				2 x 2 12 ga	14.6					1	4	2.25 x 2.25 12 ga					
65+33 Rt	R3-17			4.3	9.3				2 x 2 12 ga	12.9					1	4	2.25 x 2.25 12 ga					
65+38 Lt	R3-17			4.3	9.3				2 x 2 12 ga	12.9					1	4	2.25 x 2.25 12 ga					
Sub Total			102.8	72.5		Total	158.1								Total	72			0	0	0	
Grand Total			102.8	72.5		Total	158.1								Total	72			0	0	0	

Basis of Estimate
Sign Support Lengths

The sign support lengths have been calculated using the following vertical clearances:

Areas where parking and/or pedestrian movement will occur - 84"
Bike route - 60"

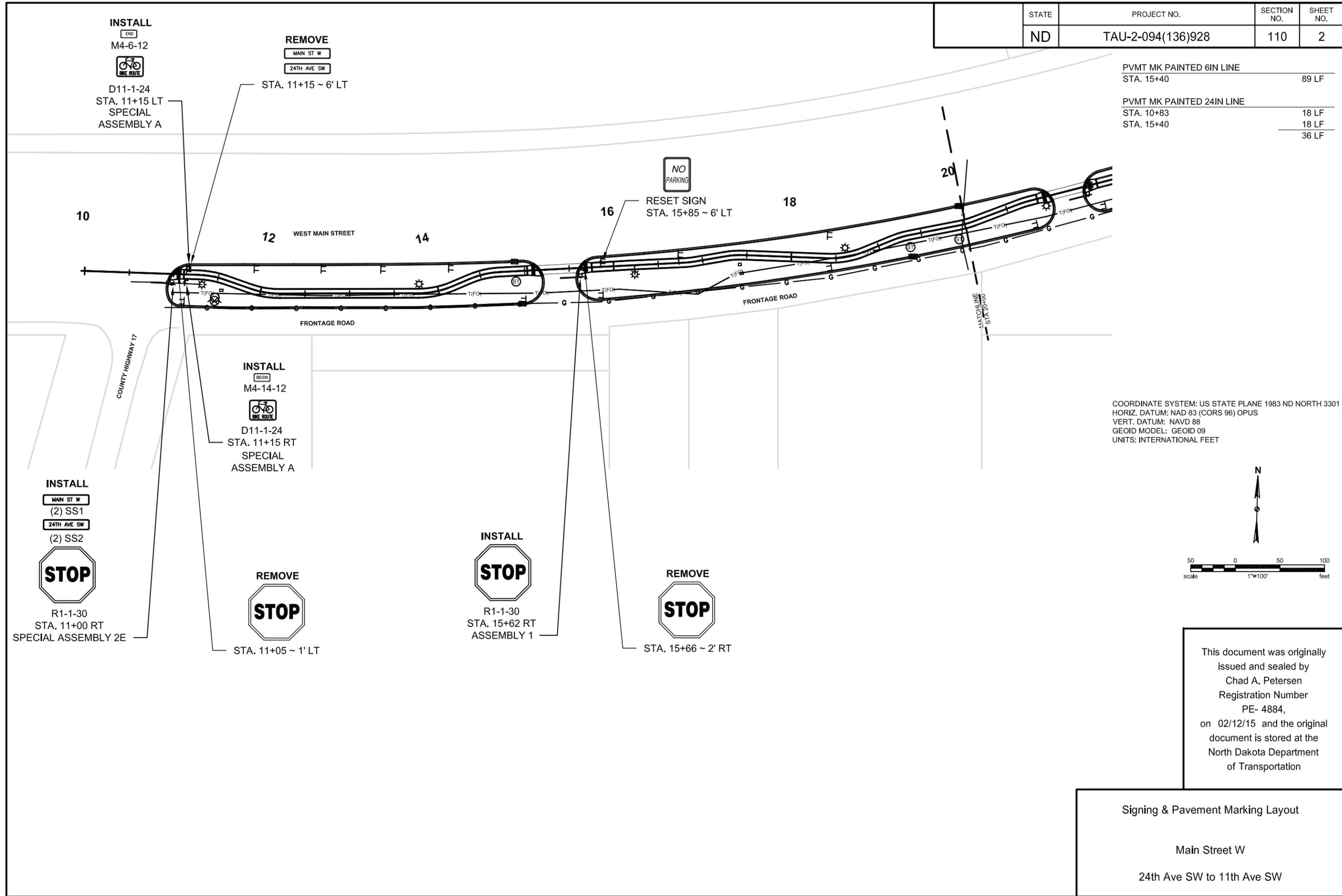
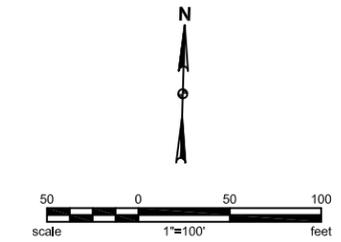
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Sign Summary
Perforated Tube

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	110	2

PVMT MK PAINTED 6IN LINE	
STA. 15+40	89 LF
PVMT MK PAINTED 24IN LINE	
STA. 10+83	18 LF
STA. 15+40	18 LF
	36 LF

COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET

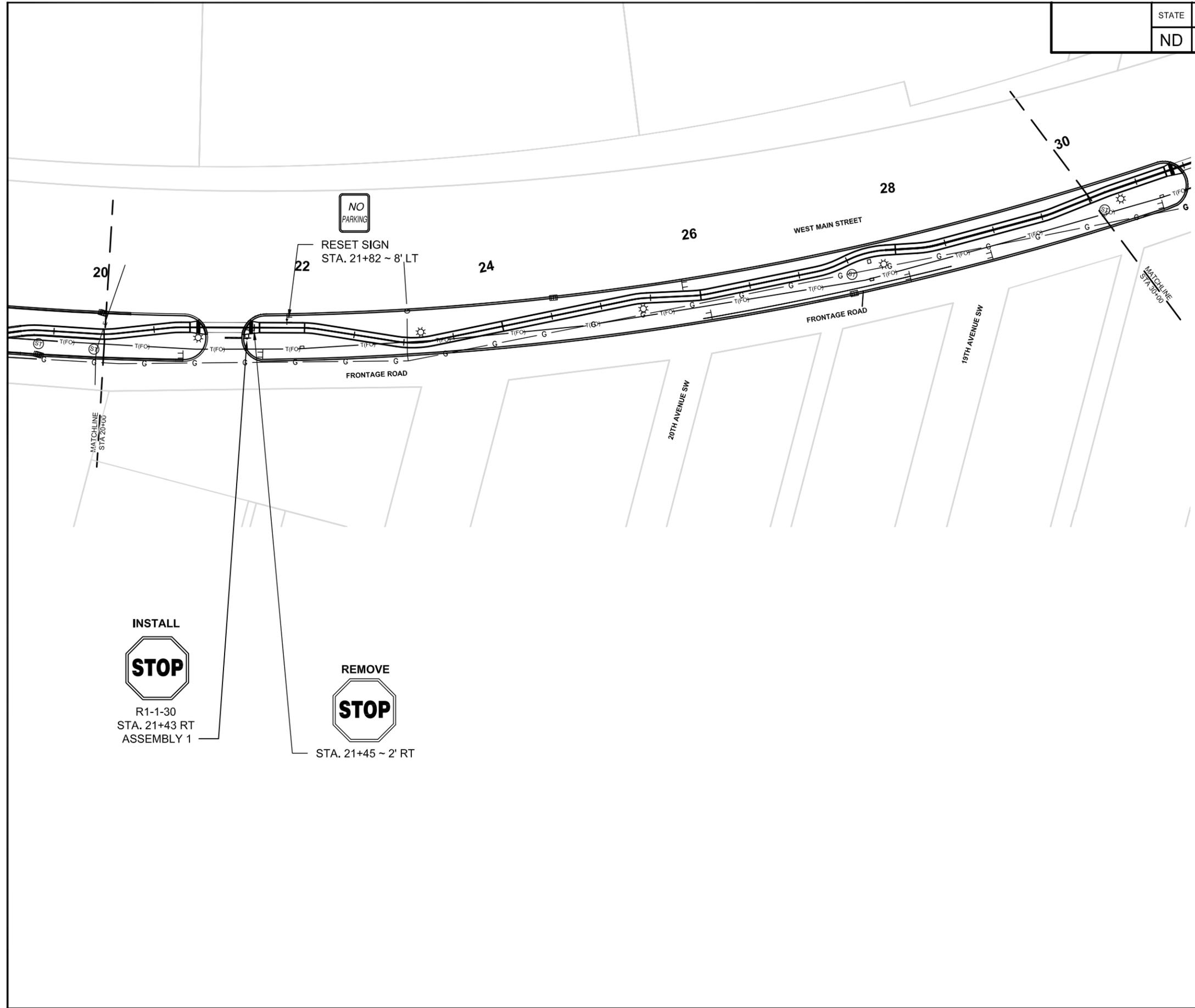


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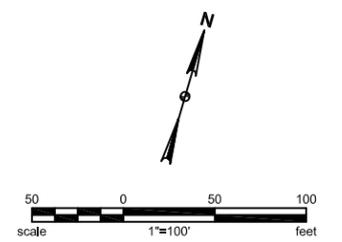
Signing & Pavement Marking Layout
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	110	3

PVMT MK PAINTED 6IN LINE	80 LF
STA. 21+21	
PVMT MK PAINTED 24IN LINE	17 LF
STA. 21+21	



COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET



INSTALL

 R1-1-30
 STA. 21+43 RT
 ASSEMBLY 1

REMOVE

 STA. 21+45 ~ 2' RT

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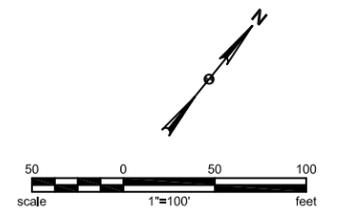
Signing & Pavement Marking Layout

 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	110	4

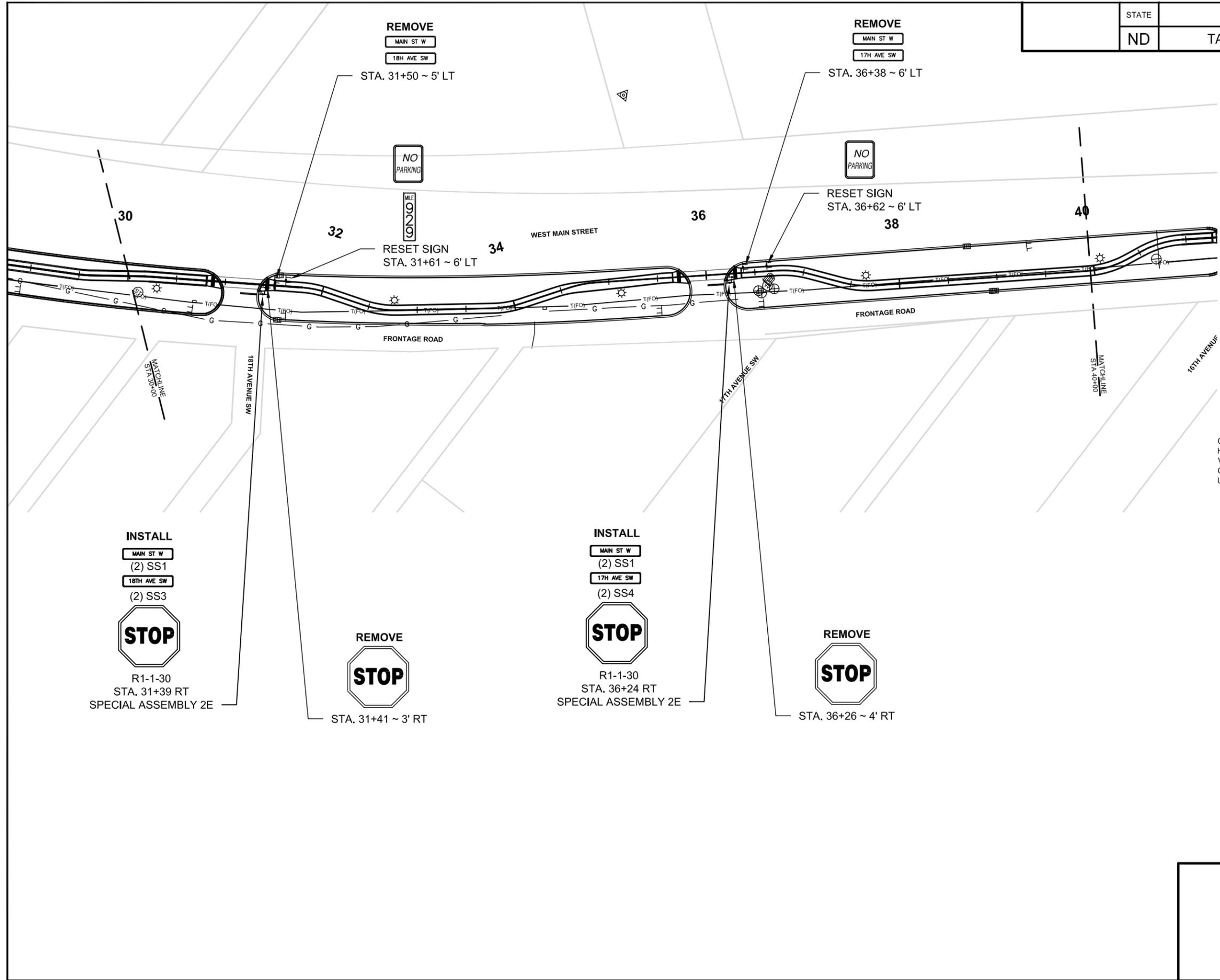
PVMT MK PAINTED 6IN LINE	
STA. 31+15	84 LF
STA. 36+00	86 LF
	170 LF
PVMT MK PAINTED 24IN LINE	
STA. 31+15	17 LF
STA. 36+00	17 LF
	34 LF

COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET

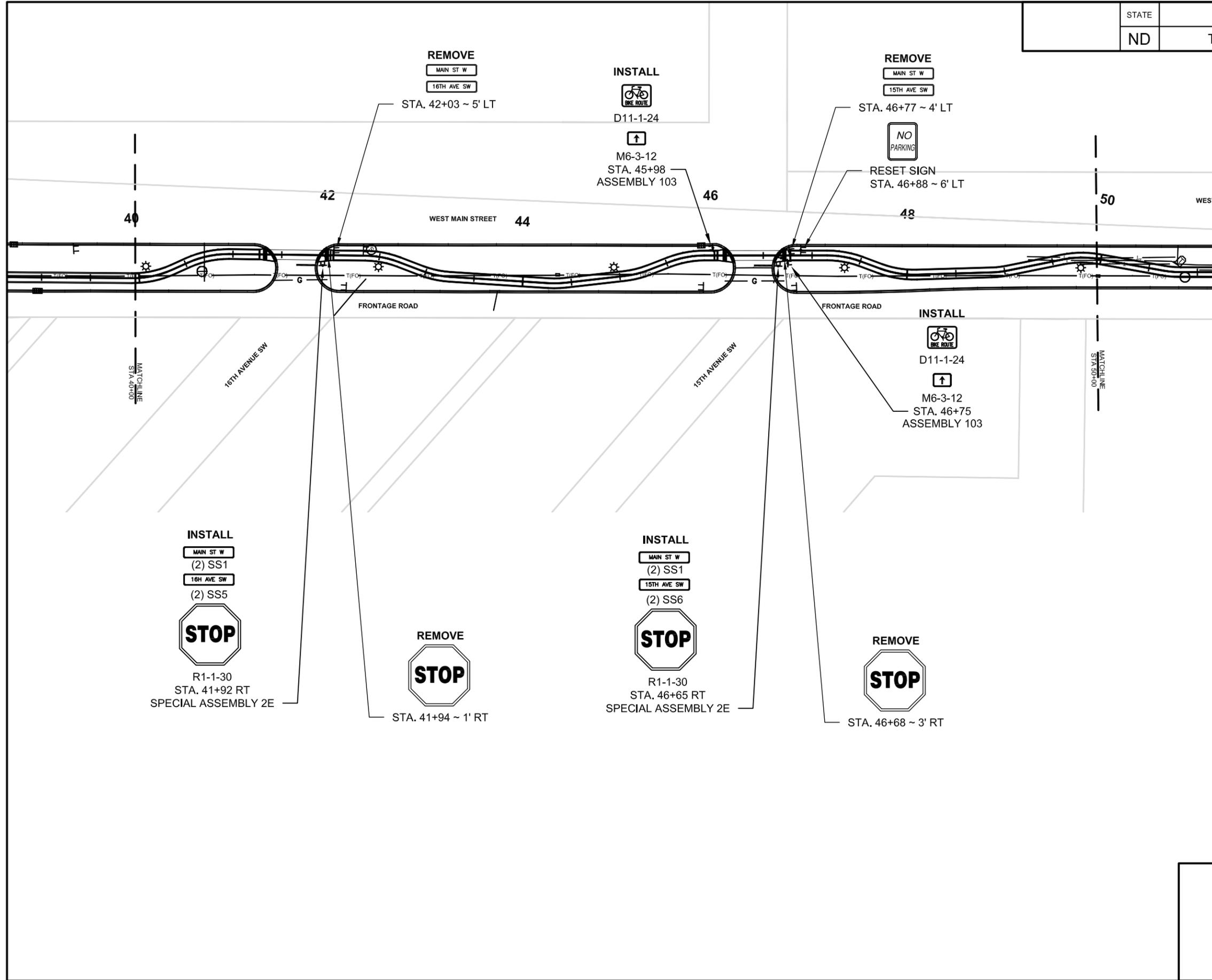


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Signing & Pavement Marking Layout
 Main Street W
 24th Ave SW to 11th Ave SW

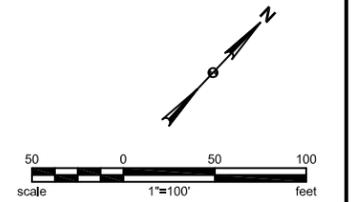


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	110	5



PVMT MK PAINTED 6IN LINE	
STA. 41+65	96 LF
STA. 46+41	93 LF
	189 LF
PVMT MK PAINTED 24IN LINE	
STA. 41+65	20 LF
STA. 46+41	19 LF
	39 LF

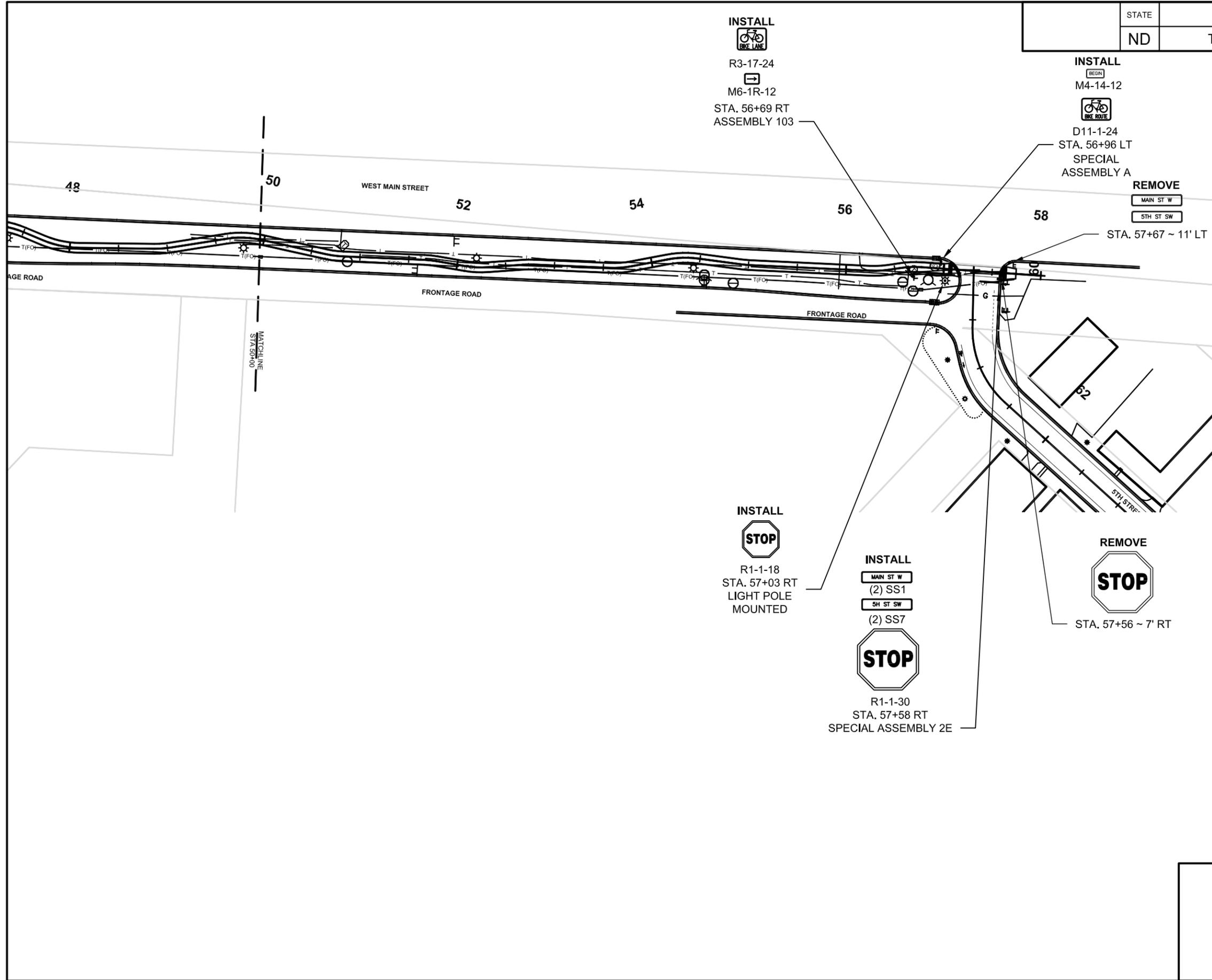
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 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET



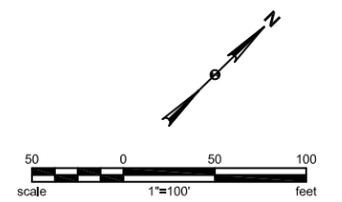
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Signing & Pavement Marking Layout
 Main Street W
 24th Ave SW to 11th Ave SW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	110	6



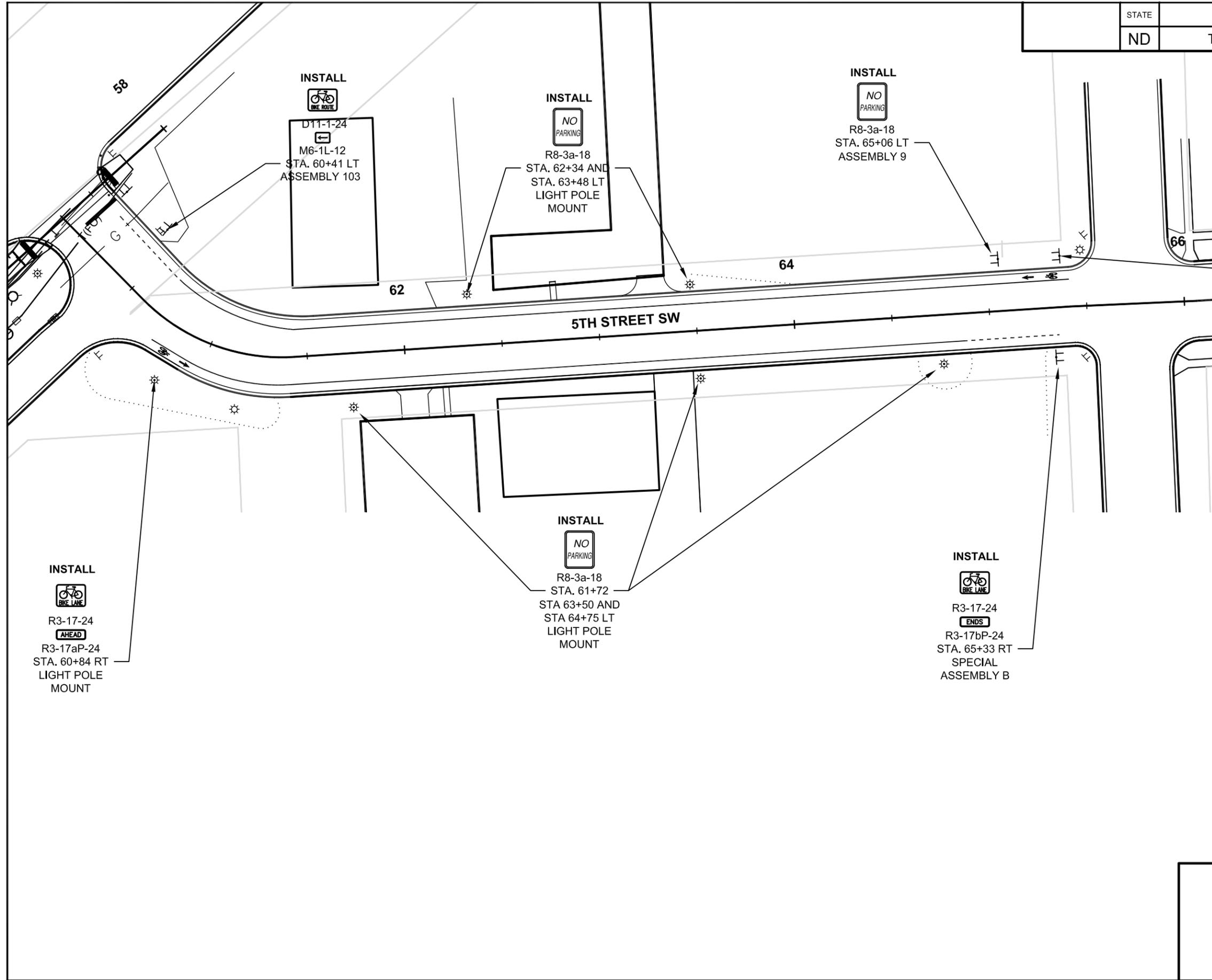
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 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
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 UNITS: INTERNATIONAL FEET



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Signing & Pavement Marking Layout
 Main Street W
 24th Ave SW to 11th Ave SW

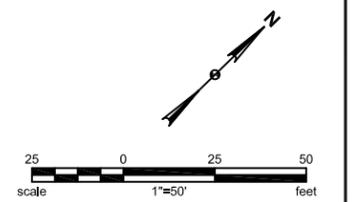
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	110	7



PVMT MK PAINTED-MESSAGE	
STA. 60+86	8.6 SF
STA. 65+27	8.6 SF
<hr/>	
	17.2 SF
PVMT MK PAINTED 6IN LINE	
STA. 60+19 TO 65+42	903 LF

INSTALL	
	R3-17-24
	R3-17aP-24
STA. 65+38 LT	
SPECIAL ASSEMBLY B	

COORDINATE SYSTEM: US STATE PLANE 1983 ND NORTH 3301
 HORIZ. DATUM: NAD 83 (CORS 96) OPUS
 VERT. DATUM: NAVD 88
 GEOID MODEL: GEOID 09
 UNITS: INTERNATIONAL FEET



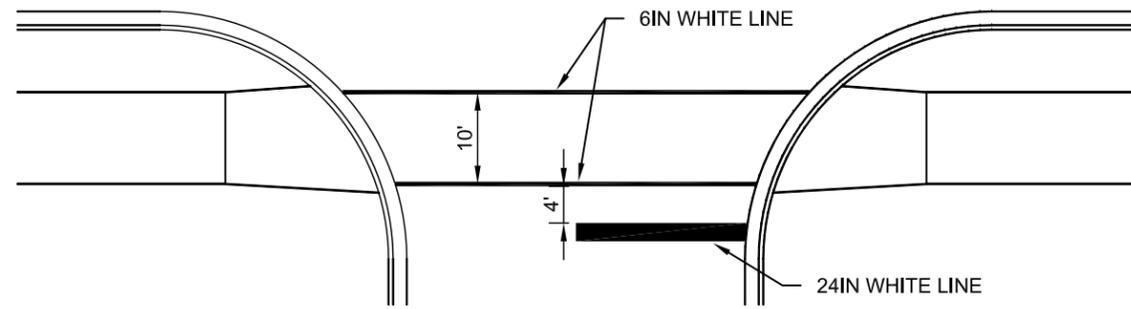
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Signing & Pavement Marking Layout

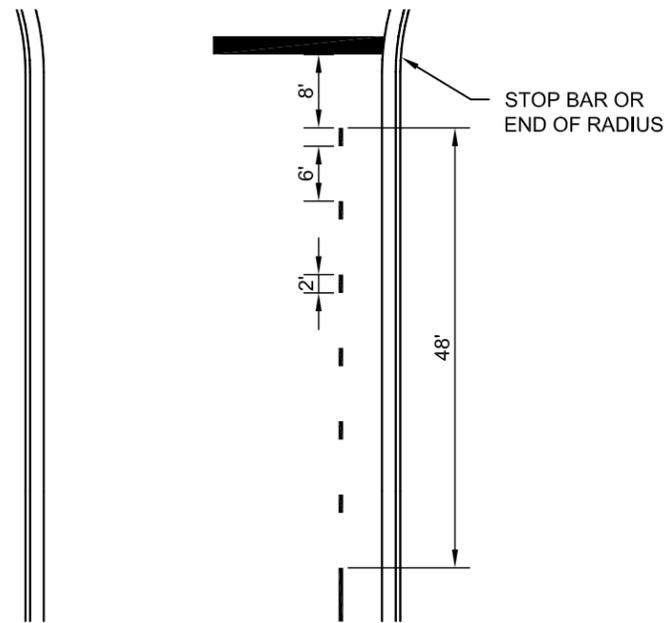
Main Street W

24th Ave SW to 11th Ave SW

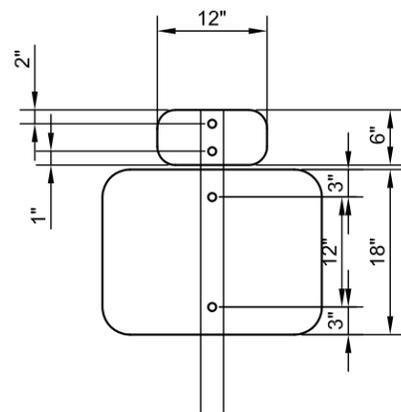
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-2-094(136)928	110	10



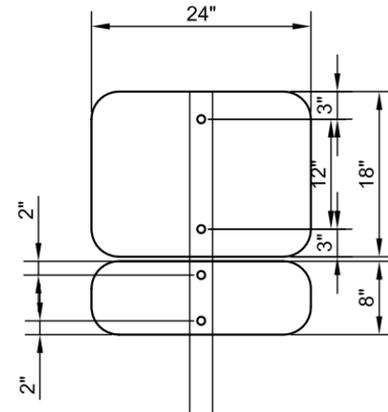
CROSSWALK PAVEMENT MARKING DETAILS



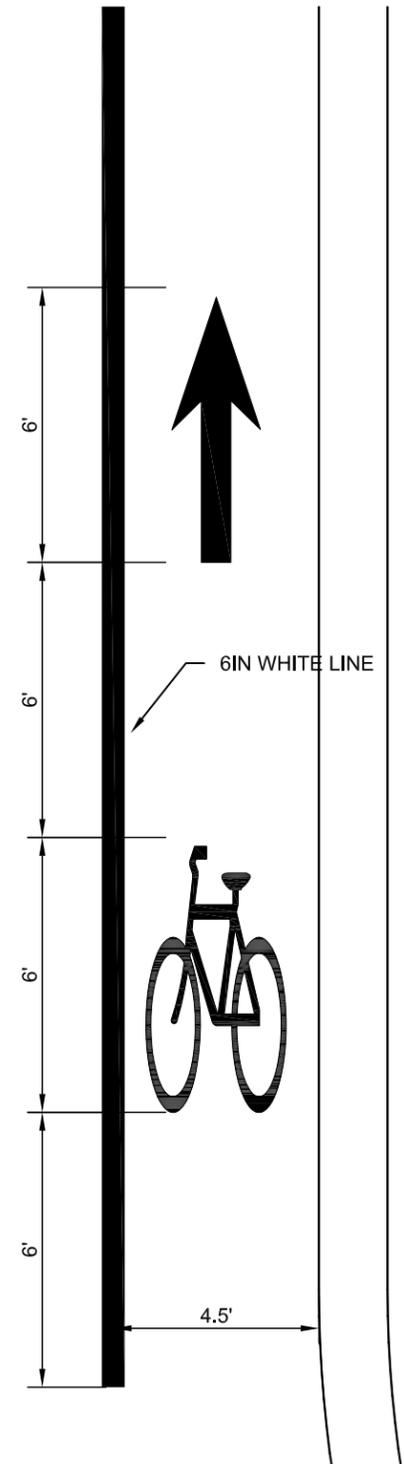
BIKE LANE TERMINATION DETAILS



SPECIAL ASSEMBLY A



SPECIAL ASSEMBLY B



BIKE LANE PAVEMENT MARKING DETAILS

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Signing and Pavement Marking Details

Main Street W

24th Ave SW to 11th Ave SW

NDDOT ABBREVIATIONS

? This is a special text character used in the labeling of existing features. It indicates a feature that has an unknown characteristic, potentially based on: lack of description, location accuracy or purpose.

Abn abandoned
 Abut abutment
 Ac acres
 Adj adjusted
 Aggr aggregate
 Ahd ahead
 ARV air release valve
 Align alignment
 Al alley
 Alt alternate
 Alum aluminum
 ADA Americans with Disabilities Act
 A ampere
 & and
 Appr approach
 Approx approximate
 ACP asbestos cement pipe
 Asph asphalt
 AC asphalt cement
 Assmd assumed
 @ at
 Atten attenuation
 ATR automatic traffic recorder
 Ave Avenue
 Avg average
 ADT average daily traffic
 Az azimuth
 Bk back
 BF back face
 Bs backsight
 Balc balcony
 B Wire barbed wire
 Barr barricade
 Btry battery
 Brg bearing
 BI beehive inlet
 Beg begin
 BM bench mark
 Bkwy bikeway
 Bit bituminous
 Blk block
 Bd Ft board feet
 BH bore hole
 BS both sides
 Bot bottom
 Blvd Boulevard
 Bndry boundary
 BC brass cap
 Brkwy breakaway
 Br bridge
 Bldg building

BV butterfly valve
 Byp bypass
 C Gdrl cable guardrail
 Calc calculate
 Cd candela
 CIP cast iron pipe
 CB catch basin
 CRS cationic rapid setting
 C Gd cattle guard
 C To C center to center
 Cl or C centerline
 Cm centimeter
 Ch chain
 Chnlk chain-link
 Ch Blk channel block
 Ch Ch channel change
 Chk check
 Chsld chiseled
 Cir circle
 Cl class
 Cl clay
 Cl F clay fill
 Cl Hvy clay heavy
 Cl Lm clay loam
 Clnt clean-out
 Clr clear
 Cl&gr clearing & grubbing
 Co S coal slack
 Comb. combination
 Coml commercial
 Compr compression
 CADD computer aided drafting & design
 Conc concrete
 Cond conductor
 Const construction
 Cont continuous
 CSB continuous split barrel sample
 Contr contraction
 Contr contractor
 CP control point
 Coord coordinate
 Cor corner
 Corr corrected
 CAES corrugated aluminum end section
 CAP corrugated aluminum pipe
 CMES corrugated metal end section
 CMP corrugated metal pipe
 CPVCP corrugated poly-vinyl chloride pipe
 CSES corrugated steel end section
 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
 Fl flange
 Flrd flared
 FES flared end section
 F Bcn flashing beacon
 FA flight auger sample
 FL flow line
 Ftg footing
 FM force main
 Fs foresight
 Fnd found
 Fdn foundation
 Frac fractional
 Frwy freeway
 Frt front
 FF front face
 F Disp fuel dispenser

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NDDOT ABBREVIATIONS

FFP	fuel filler pipes	IP	iron Pipe	M	mega	Ped	pedestrian
FLS	fuel leak sensor	Jt	joint	Mer	meridian	PPP	pedestrian pushbutton post
Furn	furnish/ed	J	joule	M	meter	Pen.	penetration
Gal	gallon	Jct	junction	M/s	meters per second	Perf	perforated
Galv	galvanized	K	kelvin	M	mid ordinate of curve	Per.	perimeter
Gar	garage	Kn	kilo newton	Mi	mile	PL	pipeline
Gs L	gas line	Kpa	kilo pascal	MM	mile marker	PI	place
G Reg	gas line regulator	Kg	kilogram	MP	mile post	P&P	plan & profile
GMV	gas main valve	Kg/m3	kilogram per cubic meter	MI	milliliter	PL	plastic limit
G Mtr	gas meter	Km	kilometer	Mm	millimeter	PI	plate
GSV	gas service valve	K	Kip(s)	Mm/hr	millimeters per hour	Pt	point
GVP	gas vent pipe	LS	Land Surveyor (licensed)	Min	minimum	PCC	point of compound curve
GV	gate valve	LSIT	Land Surveyor In Training	Misc	miscellaneous	PC	point of curve
Ga	gauge	Ln	lane	Mon	monument	PI	point of intersection
Geod	geodetic	Lg	large	Mnd	mound	PRC	point of reverse curvature
GIS	Geographical Information System	Lat	latitude	Mtbl	mountable	PT	point of tangent
G	giga	Lt	left	Mtd	mounted	POC	point on curve
GPS	Global Positioning System	L	length of curve	Mtg	mounting	POT	point on tangent
Gov	government	Lens	lenses	Mk	muck	PE	polyethylene
Grd	graded/grade	Lvl	level	Mun	municipal	PVC	polyvinyl chloride
Gr	gravel	LB	level book	N	nano	PCC	Portland Cement concrete
Grnd	ground	LvIng	leveling	NGS	National Geodetic Survey	Lb or #	pounds
GWM	ground water monitor	Lht	light	NS	near side	PP	power pole
Gdrl	guardrail	LP	light pole	Neop	neoprene	Preempt	preemption
Gtr	gutter	Ltg	lighting	Ntwk	network	Prefab	prefabricated
H Plg	H piling	Lig Co	lignite coal	N	newton	Prfmd	performed
Hdwl	headwall	Lig Sl	lignite slack	N	North	Prep	preparation
Ha	hectare	LF	linear foot	NE	North East	Press.	pressure
Ht	height	Liq	liquid	NW	North West	PRV	pressure relief valve
HI	height of instrument	LL	liquid limit	NB	Northbound	Prestr	prestressed
Hel	helical	L	litre	No. or #	number	Pvt	private
H	henry	Lm	loam	Obsc	obscure(d)	PD	private drive
HZ	hertz	Loc	location	Obsn	observation	Prod.	production/produce
HDPE	high density polyethylene	LC	long chord	Ocpd	occupied	Prog	programmed
HM	high mast	Long.	longitude	Ocpy	occupy	Prop.	property
HP	high pressure	Lp	loop	Off Loc	office location	Prop Ln	property line
HPS	high pressure sodium	LD	loop detector	O/s	offset	Ppsd	proposed
Hwy	highway	Lm	lumen	OC	on center	PB	pull box
Hor	horizontal	Lum	luminaire	C	one dimensional consolidation		
HBP	hot bituminous pavement	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		
IPn	Iron Pin	MC	medium curing	Ped	pedestal		

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NDDOT ABBREVIATIONS

D-101-3

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

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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
 DICKEY R NET Dickey Rural Networks
 DICKEY RWU Dickey Rural Water Users Association
 DICKEY TEL Dickey Telephone
 DNRR Dakota Northern Railroad
 DOME PL Dome Pipeline Company
 DVELEC Dakota Valley Electric Cooperative
 DVMW Dakota, Missouri Valley & Western
 ENBRDG Enbridge Pipelines Incorporated
 ENVENTIS Enventis Telephone
 FALK MNG Falkirk Mining Company
 FHWA Federal Highway Administration
 G FKS-TRL WD Grand Forks-traill Water District
 GETTY TRD & TRAN Getty Trading & Transportation
 GLDN W ELEC Golden West Electric Cooperative
 GRGS CO TEL Griggs County Telephone

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
 MCKENZIE 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 GHG PLNS PL Tesoro High Plains Pipeline
 TRI-CNTY WU Tri-County Water Users Incorporated
 TRL CO RWU Traill County Rural Water Users
 UNTD TEL United Telephone
 UPPR SOUR WUA Upper Souris Water Users Association
 US SPRINT U.S. Sprint
 USAF MSL CABLE U.S.A.F. Missile Cable
 USFWS US Fish and Wildlife Service
 USW COMM U.S. West Communications
 VRNDRY ELEC Verendrye Electric Cooperative
 W RIV TEL West River Telephone Incorporated
 WEB W. E. B. Water Development Association
 WILLI RWA Williams Rural Water Association
 WILSTN BAS PL Williston Basin Interstate Pipeline Company
 WLSH RWD Walsh Water Rural Water District
 WOLVRTN TEL Wolverton Telephone
 XLENER Xcel Energy
 YSVR Yellowstone Valley Railroad

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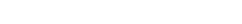
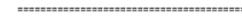
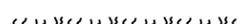
Line Styles

.....	Limits of Const Transition Line	—— s —— s ——	Floating Silt Curtain	—— ——— ———	Existing Aggregate (Cross Section View)	- - - - -	Existing Centerline
.....	Bale Check	—— ——— T ——	Existing Telephone Line	—— ——— ———	Existing Curb and Gutter (Cross Section View)	- - - - -	Supplemental Contour
.....	Rock Check	—— ——— TV ——	Existing TV Line	—— ——— ———	Existing Riprap	—— - - - - -	Right of Way
.....	Sight Distance Triangle Line	Void — void — void — v	Existing Assumed Ground (Not Surveyed)	—— ——— ———	Existing Underground Vault or Lift Station	—— - - - - -	Existing Right of Way
- - - - -	Small Hidden Object	Void — void — void — v	Tentative Ground Line	—— ——— ———	Tangent Line	—— - - - - -	Existing Right of Way Railroad
- - - - -	Dimension Leader	—— ——— w ——	Existing Water or Steam Line	- - - - -	Hidden Object	- - - - -	Failure Line
- - - - -	Existing Ground	=====	Existing Under Drain	—— ——— ———	Existing Dirt Surface	- - - - -	Existing Conditions
- - - - -	Existing Topsoil (Cross Section View)	=====	Under Drain	—— ——— ———	Existing Conduit	- - - - -	Existing Ground (Details)
—— ——— ———	Large Hidden Object	=====	Wall	—— ——— ———	Topsoil Profile	—— - - - - -	Existing Sixteenth Section Line
—— ——— ———	Edge Drain	=====	Existing Slotted Drain	- - - - -	Existing Conductor	- - - - -	Existing Right of Way Not State Owned
—— D —— D ——	Geotextile Fabric Type D	—— + —— + ——	Existing Cemetary Boundary	- - - - -	Conductor	- - - - -	Phantom Object
—— ——— E ——	Existing Electrical	—— ——— ———	Centerline Pavement Marking	- - - - -	Fiber Optic	- - - - -	Centerline Main
—— ——— FO ——	Existing Fiber Optic Line	=====	Barrier with Centerline Pavement Marking	- - - - -	Existing Loop Detector	-	Existing Guardrail Cable
—— ——— FO ——	Existing TV Fiber Optic	=====	Barrier Pavement Marking	- - - - -	Subgrade, Subcut or Ditch Grade	— • — • — • — •	Existing Guardrail Metal
—— ——— G ——	Existing Gas Pipe	- - - - -	Stripe 4 IN Dotted Extension White	—— ——— ———	Existing Asphalt Surface	—— . ——— . ——— . ——— .	Existing Edge of Water
—— Geo —— Geo ——	Geogrid	- - - - -	Stripe 8 IN Dotted Extension White	—— ——— ———	Existing Asphalt (Cross Section View)	- - - - -	Excavation Limits
—— ——— OH ——	Existing Overhead Utility Line	- - - - -	Stripe 8 IN Lane Drop	—— ——— ———	Existing Reinforcement Rebar	——	Existing Government Lot Line
—— ——— P ——	Existing Power	—— v v v v ——	Wetland Mitigation	—— ——— ———	Existing Tie Point Line	.....	Existing Adjacent Block Lines
—— ——— PL ——	Existing Fuel Pipeline	- - - - -	Existing Box Culvert Bridge	—— ——— ———	Existing State or International Line	.....	Existing Adjacent Lot Lines
—— ——— PL ——	Existing Undefined Above Ground Pipe Line	- - - - -	Existing Concrete Surface	—— ——— ———	Existing Quarter Section Line	.....	Existing Adjacent Property Line
—— ——— R —— R ——	Geotextile Fabric Type R	- - - - -	Existing Drainage Structure	—— ——— ———	Existing County	.....	Existing Adjacent Subdivision Lines
—— ——— R —— R ——	Geotextile Fabric Type R1	- - - - -	Easement	—— ——— ———	Existing Section Line	.....
—— REMOVE —— REMOVE ——	Remove Line	- - - - -	Existing Concrete	—— ——— ———	Existing Township	.....
—— RR —— RR ——	Geotextile Fabric Type RR	- - - - -	Existing Easement	—— ——— ———	Existing Railroad Centerline	
—— S —— S ——	Geotextile Fabric Type S	—— ——— ———	Existing Gravel Surface	—— - - - - -	Centerline	

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Line Styles

	Subgrade Reinforcement		Existing Railroad Switch		Sheet Piling
	Existing Down Guy Wire Down Guy		Overhead Sign Structure Cantilever		W-Beam w Posts
	Existing Fence		24 Inch Pipe		Existing W-Beam Guardrail with Posts
	Existing Railroad		Reinforced Concrete Pipe		Exst Wet Area-Vegetation Break
	Existing Sanitary Sewer		Signal Head with Mast Arm		Existing Wetland Delineated
	Existing Sanitary Force Main		Existing Signal Head with Mast Arm		
	Existing Storm Drain		Tie Bar at Random Spacing		
	Existing Storm Drain Force Main		3-Cable w Posts		
	Fence		Existing 3-Cable w Posts		
	Silt Fence		Site Boundary		
	Existing Field Line		Fiber Rolls		
	Exst Flow		Doweled Joint		
	Flow		Tie Bar 30 Inch 4 Foot Center to Center		
	Existing Culvert		Tie Bar 18 Inch 3 Foot Center to Center		
	Existing Curb		Existing Berm, Dike, Pit, or Earth Dam		
	Existing Valley Gutter		Existing Ditch Block		
	Existing Driveway Gutter		Depression Contours		
	Existing Curb and Gutter		Existing City Corporate Limits or Reservation Boundary		
	Existing Mountable Curb and Gutter		Gravel Pit - Borrow Area		
	Existing Double Micro Loop Detector		Existing Tree Boundary		
	Micro Loop Detector Double		Tree Row		
	Existing Overhead Sign Structure		Existing Brush or Shrub Boundary		
	Existing Micro Loop Detector		Existing Retaining Wall		
	Micro Loop Detector		Existing Planter or Wall		
	Existing Overhead Sign Structure Cantilever		Retaining Wall (Plan View)		

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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		
	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		

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REVISIONS	
DATE	CHANGE

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Symbols

	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		

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07-01-14	
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Symbols

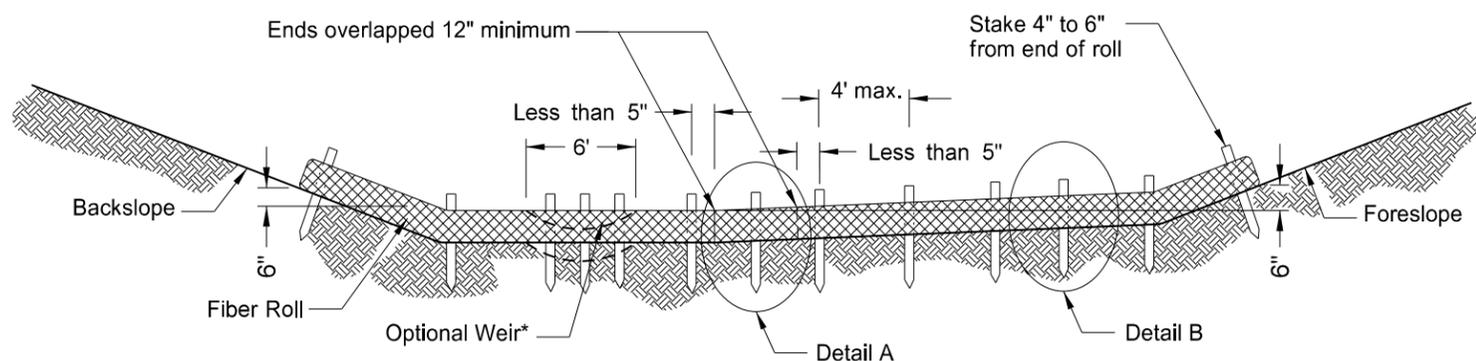
D-101-32

 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 Gate 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
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NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
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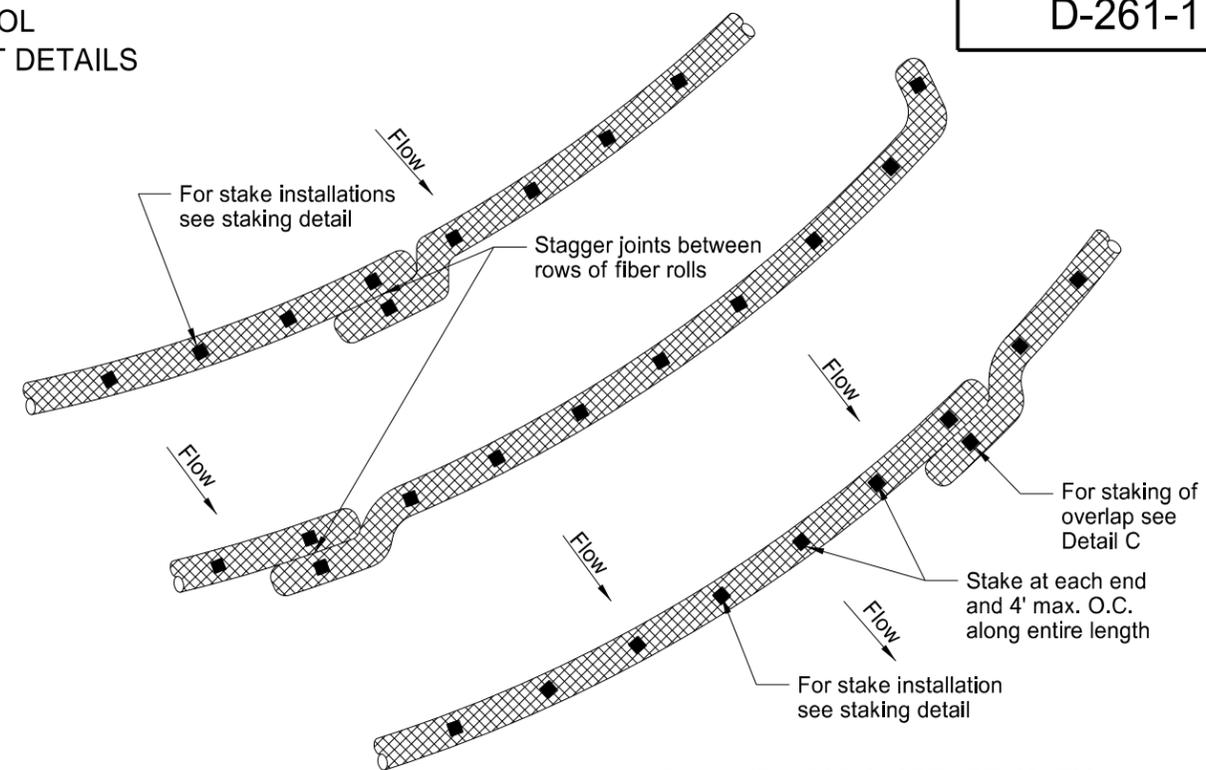
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EROSION CONTROL
FIBER ROLL PLACEMENT DETAILS

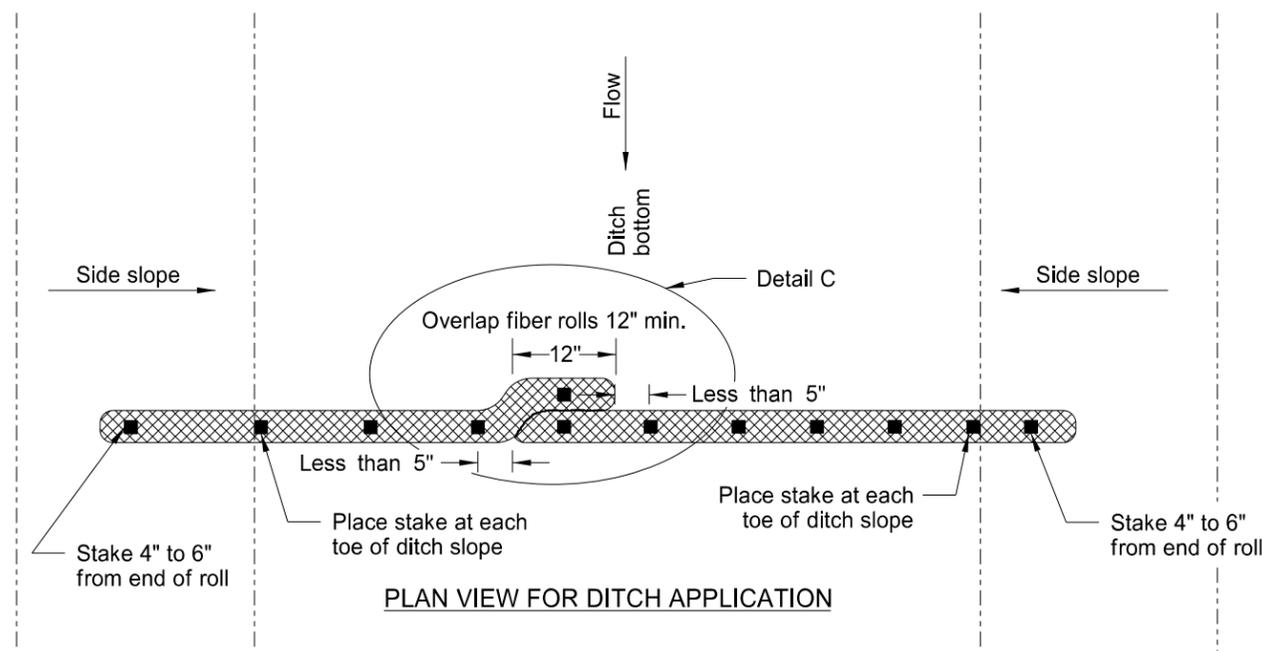


*Optional Weir. Use in flat areas, such as the Red River Valley, where there is potential for water to back up on adjacent property. Lower fiber roll enough to prevent water from backing up on adjacent property. Do not use 20-inch fiber rolls in flat areas where there is potential for water to back up on adjacent property.

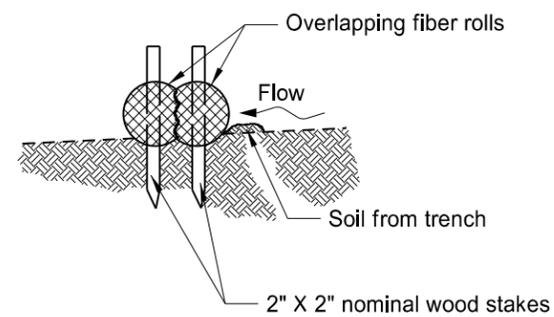
12 OR 20 INCH FIBER ROLL - DITCH BOTTOM



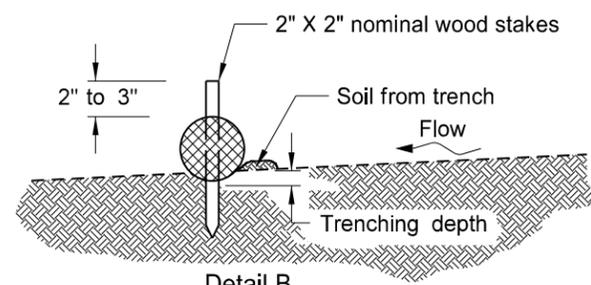
PLAN VIEW FOR SLOPE APPLICATION



PLAN VIEW FOR DITCH APPLICATION



Detail A
Fiber Roll Overlapping Staking Detail



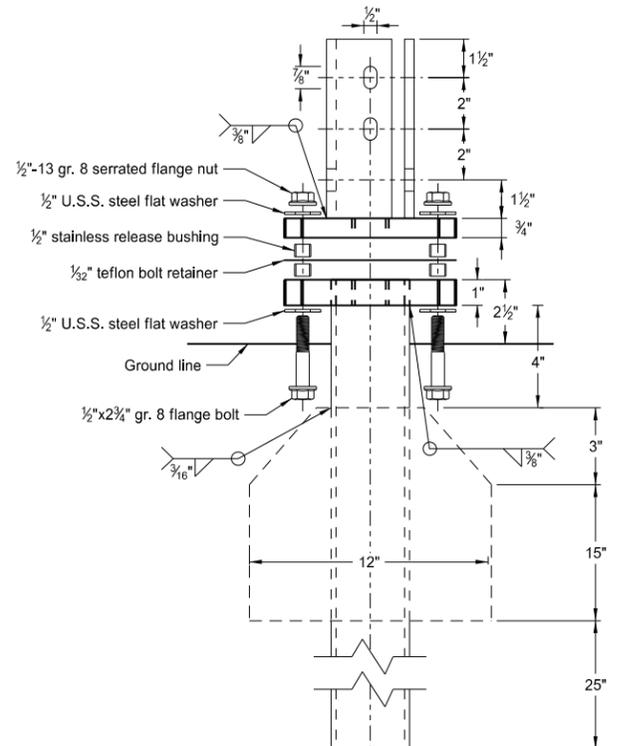
Detail B
Fiber Roll Staking Detail

FIBER ROLL DIAMETER	NOMINAL STAKE SIZE	MINIMUM STAKE LENGTH	MINIMUM TRENCH DEPTH	MAXIMUM TRENCH DEPTH
6"	2" x 2"	18"	2"	2"
12"	2" x 2"	24"	2"	3"
20"	2" x 2"	36"	3"	5"

NOTE: Runoff must not be allowed to run under or around roll.

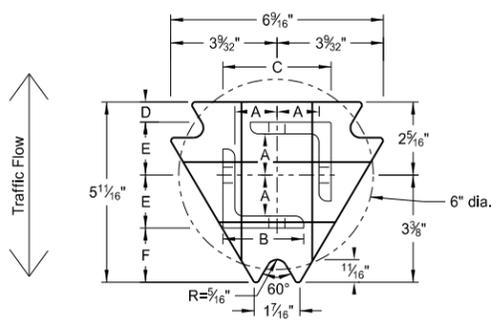
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-18-10	
REVISIONS	
DATE	CHANGE
06-10-13	Added plan view for ditch and slope application, Added table with values for stake and trench dimensions.
10-04-13	Revised fiber roll overlap detail.
06-26-14	Changed standard drawing number from D-708-7 to D-261-1

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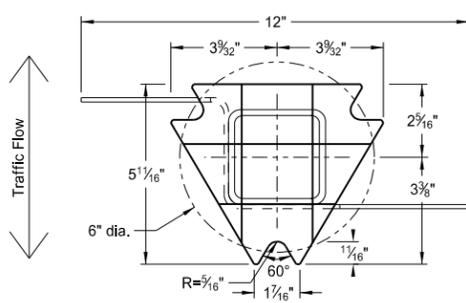


Multi-Directional Slip Base Assembly

Perforated Tube



Top Post Receiver
Plate - ASTM A572 grade 50
Angle Receiver - 2 1/2 x 2 1/2 x 3/8 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

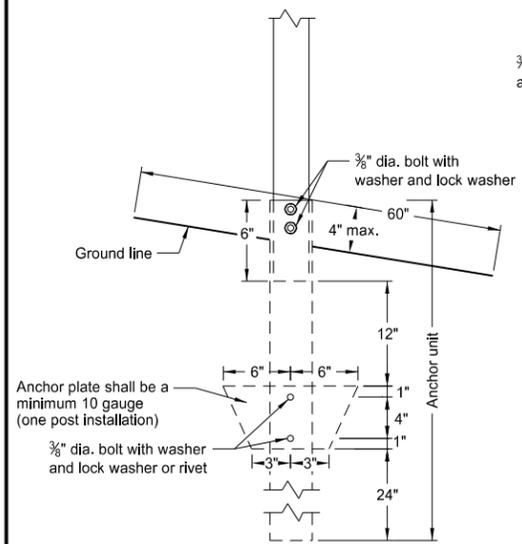
Notes:

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.

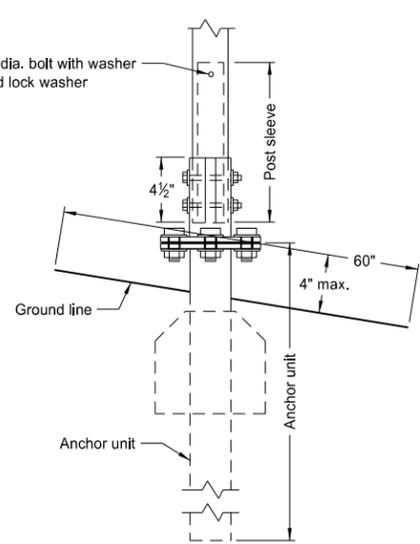
Telescoping Perforated Tube						
Number of Posts	Post Size in.	Wall Thickness Gauge	Sleeve Size in.	Wall Thickness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2 1/4
1	2 1/4	12			No	2 1/2
1	2 1/2	12			(A)	3
1	2 1/2	10			Yes	
1	2 1/4	12	2	12	Yes	
1	2 1/2	12	2 1/4	12	Yes	
2	2	12			No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

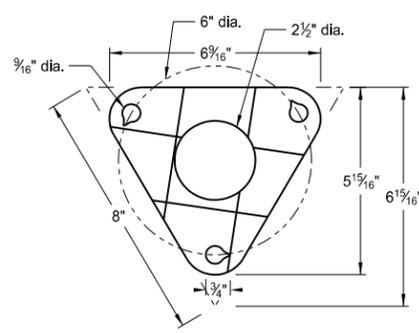
Top Post Receiver Data Table						
Square Post Sizes (B)	A	B	C	D	E	F
2 3/16"x10 ga.	1 9/64"	2 1/2"	3 1/32"	2 5/32"	1 33/64"	1 1/8"
2 1/2"x10 ga.	1 9/32"	2 1/2"	3 5/16"	5/8"	1 21/32"	1 3/4"



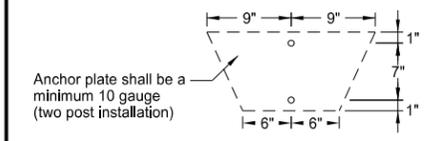
Anchor Unit and Post Assembly



Multi-Directional Slip Base Anchor Unit and Post Sleeve Assembly



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



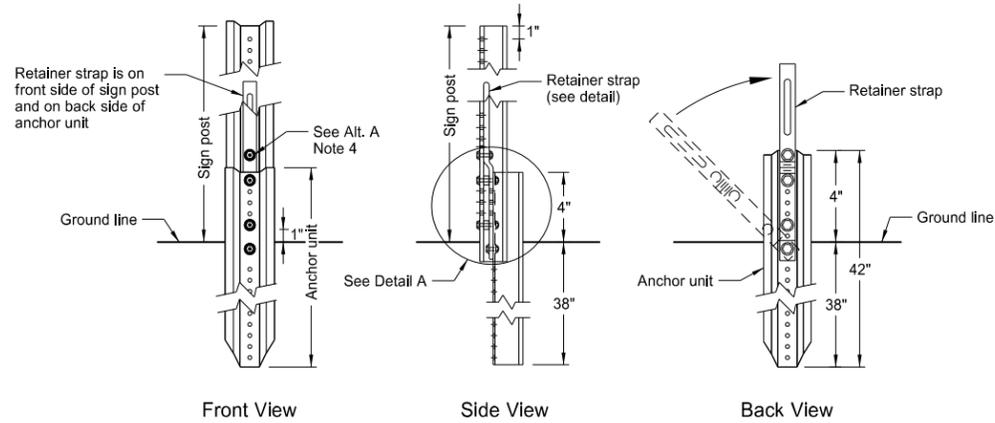
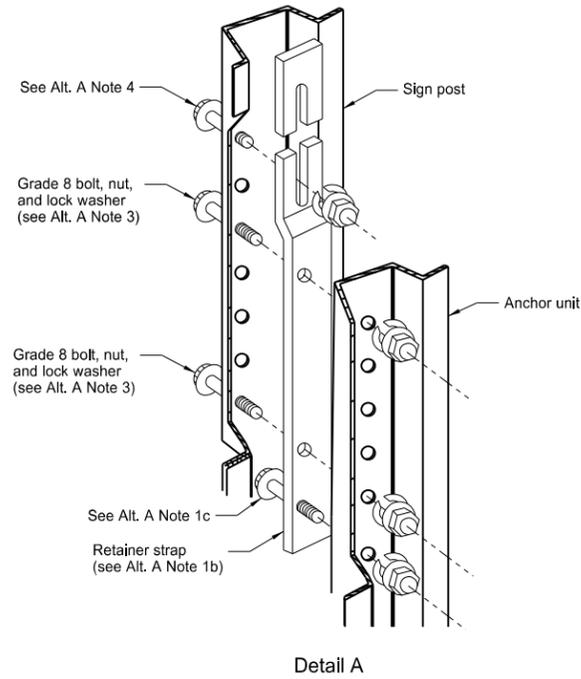
Anchor plate shall be a minimum 10 gauge (two post installation)

- (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	
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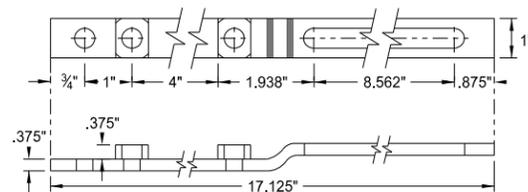
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U-Channel Post

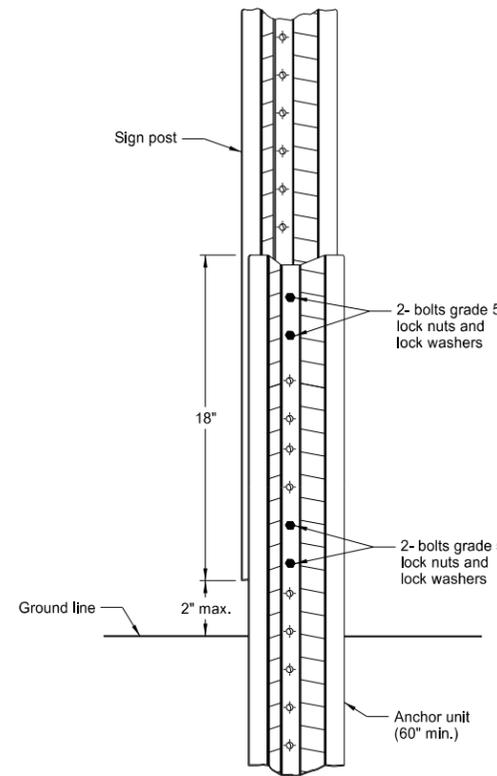


Breakaway U-Channel Detail Alternate A

A maximum of 2 posts shall be installed within 7'.

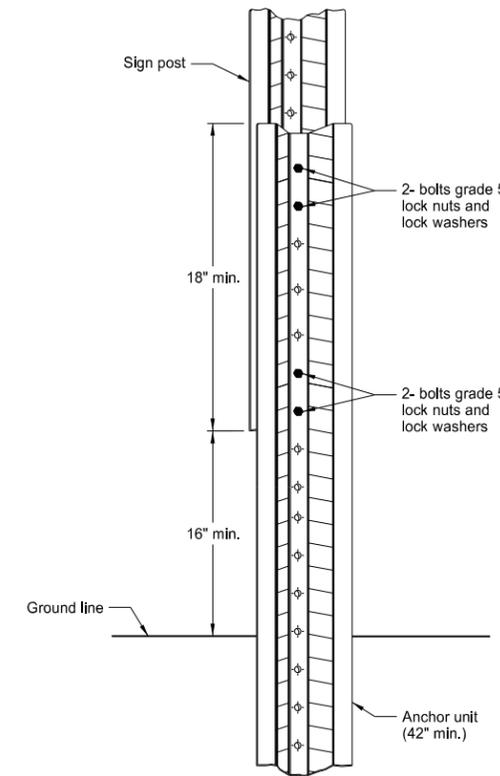


Retainer Strap Detail



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'.

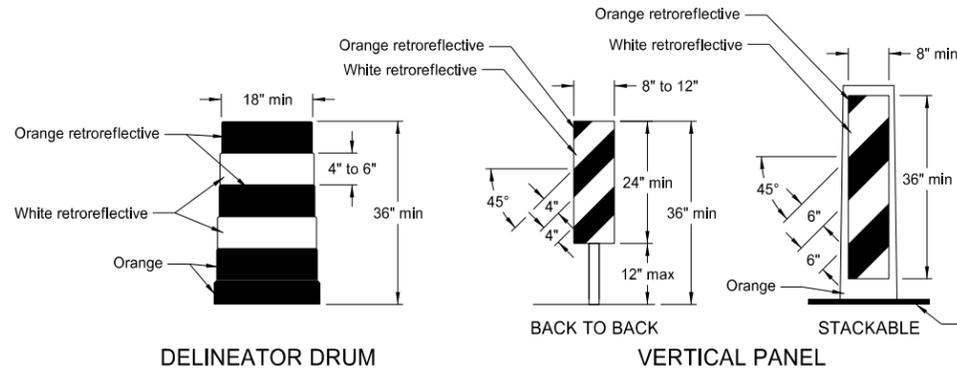
Alternate A Steps of Installation:

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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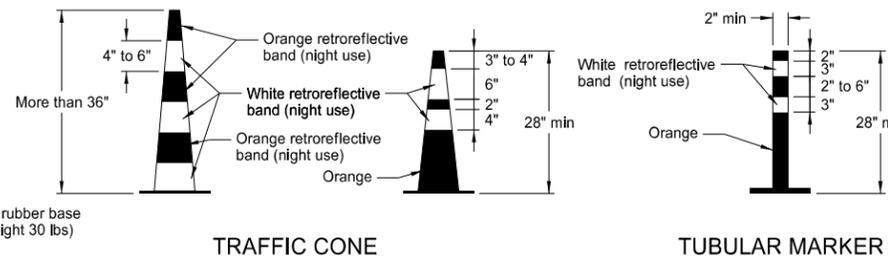
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BARRICADE AND CHANNELIZING DEVICE DETAILS



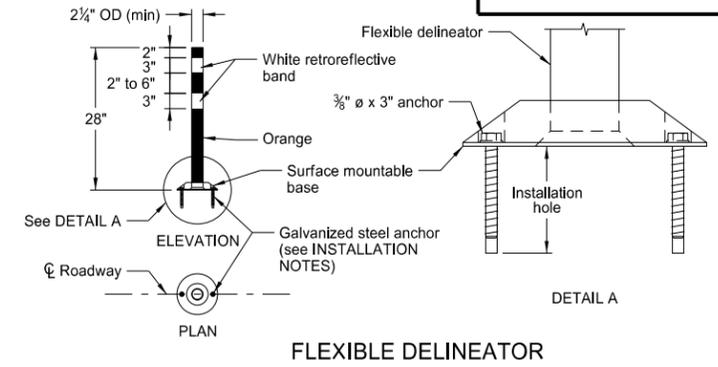
The markings on drums shall be horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide. Each drum shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectORIZED spaces between the horizontal orange and white 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.

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.



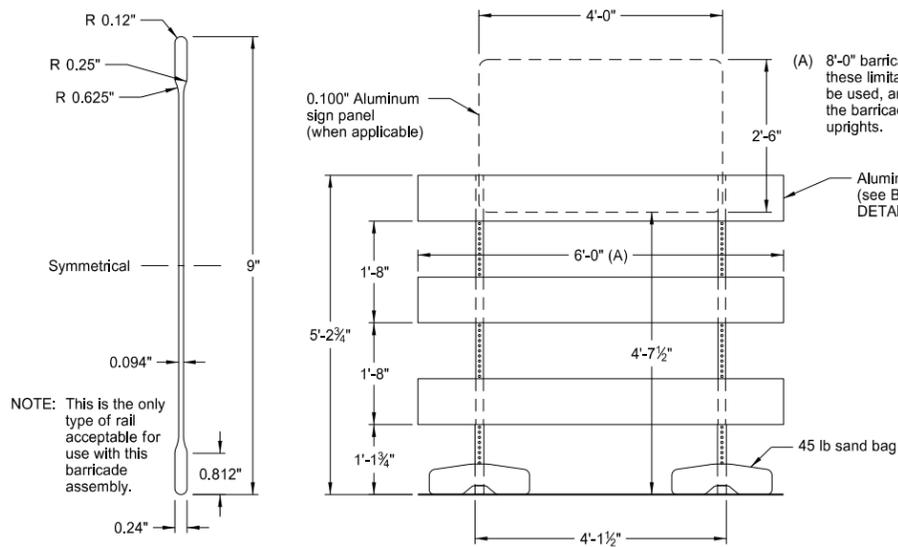
RetroreflectORIZATION of cones more than 36" in height shall be provided by alternating orange and white retroreflective stripes. Each cone shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectORIZED space between the orange and white stripes shall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

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.



INSTALLATION NOTES:

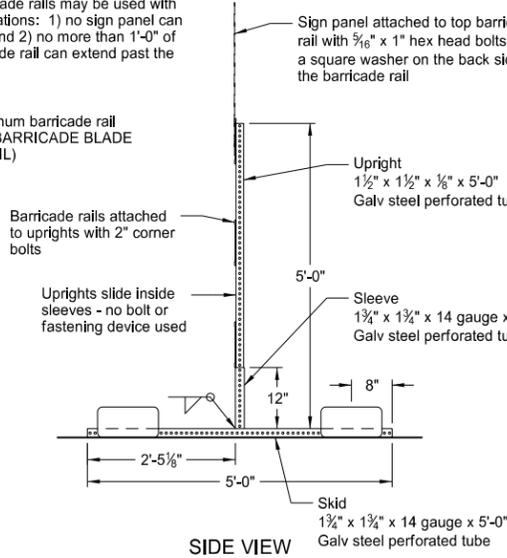
1. Drill installation holes to diameter and depth as required by manufacturer's specifications.
2. For removal, remove anchors and fill installation hole with an epoxy designed to bond to pavement surface.
3. In lieu of bolted down base, the contractor may use an 8" x 8" butyl pad or hot melt butyl.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



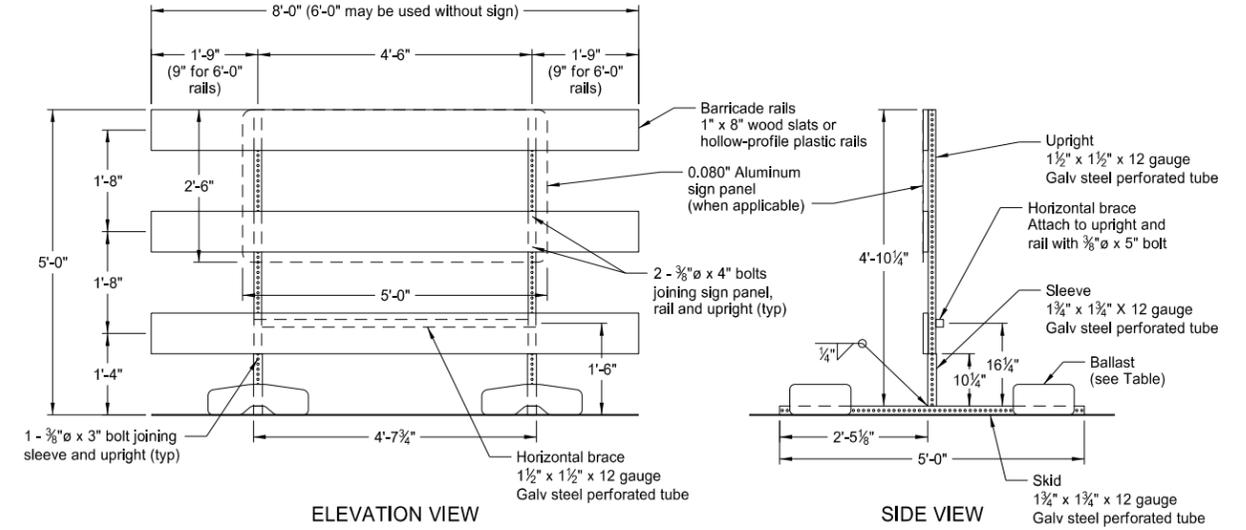
BARRICADE BLADE DETAIL

ELEVATION VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)



SIDE VIEW

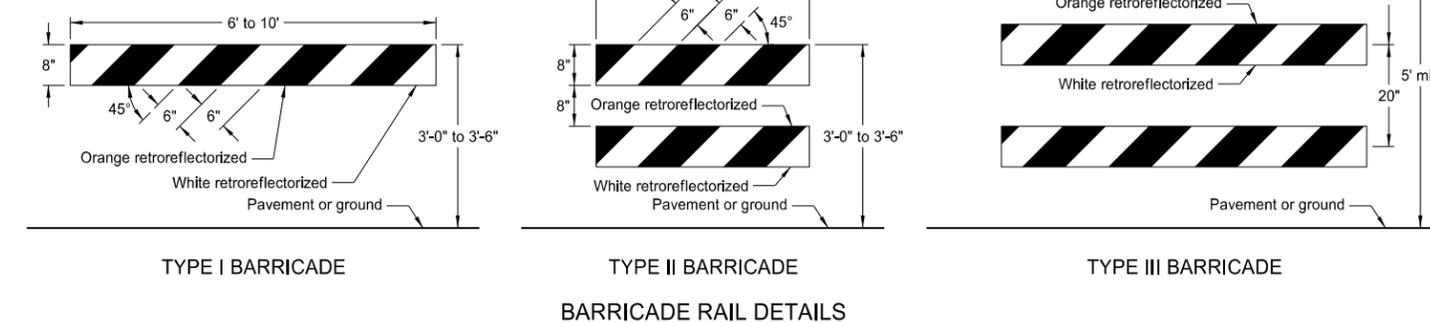


ELEVATION VIEW

SIDE VIEW

BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

NOTE: Markings for barricades shall be alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Retroreflective sheeting shall be placed on both sides of the rails and shall have a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36", the rail stripe width shall be 4".

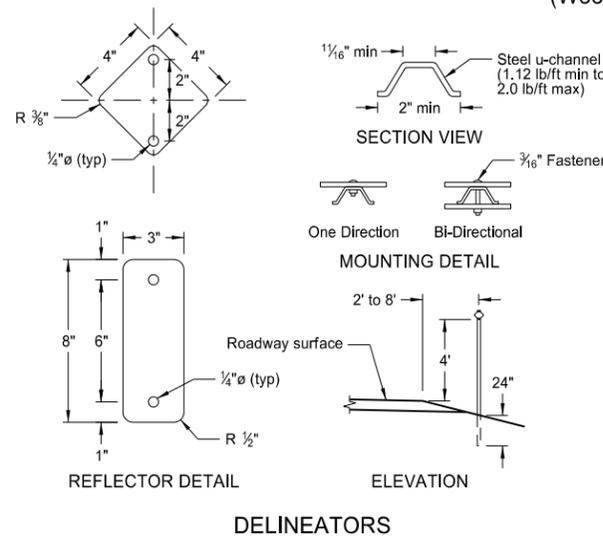


TYPE I BARRICADE

TYPE II BARRICADE

TYPE III BARRICADE

BARRICADE RAIL DETAILS



REFLECTOR DETAIL

ELEVATION

DELINEATORS

MINIMUM BALLAST (For each side of barricade support)

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

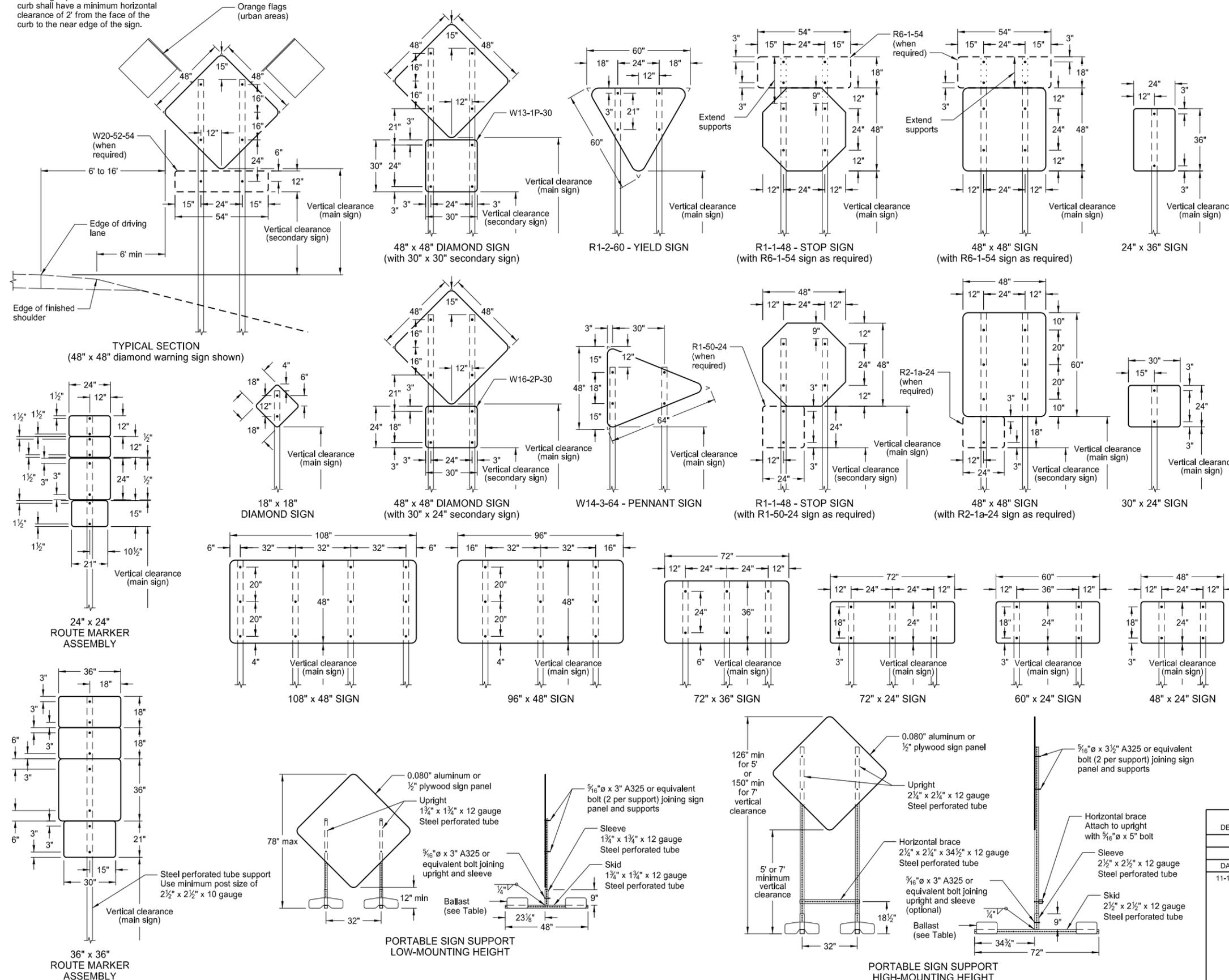
Note: The number of sandbags are based on a wind speed of 55 MPH. The sandbags are assumed to be placed at or near the ends of the skids.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
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CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

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.



- NOTES:
- 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.
 - 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.
 - 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)
 - 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
 - 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.
 - 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, W1-5 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

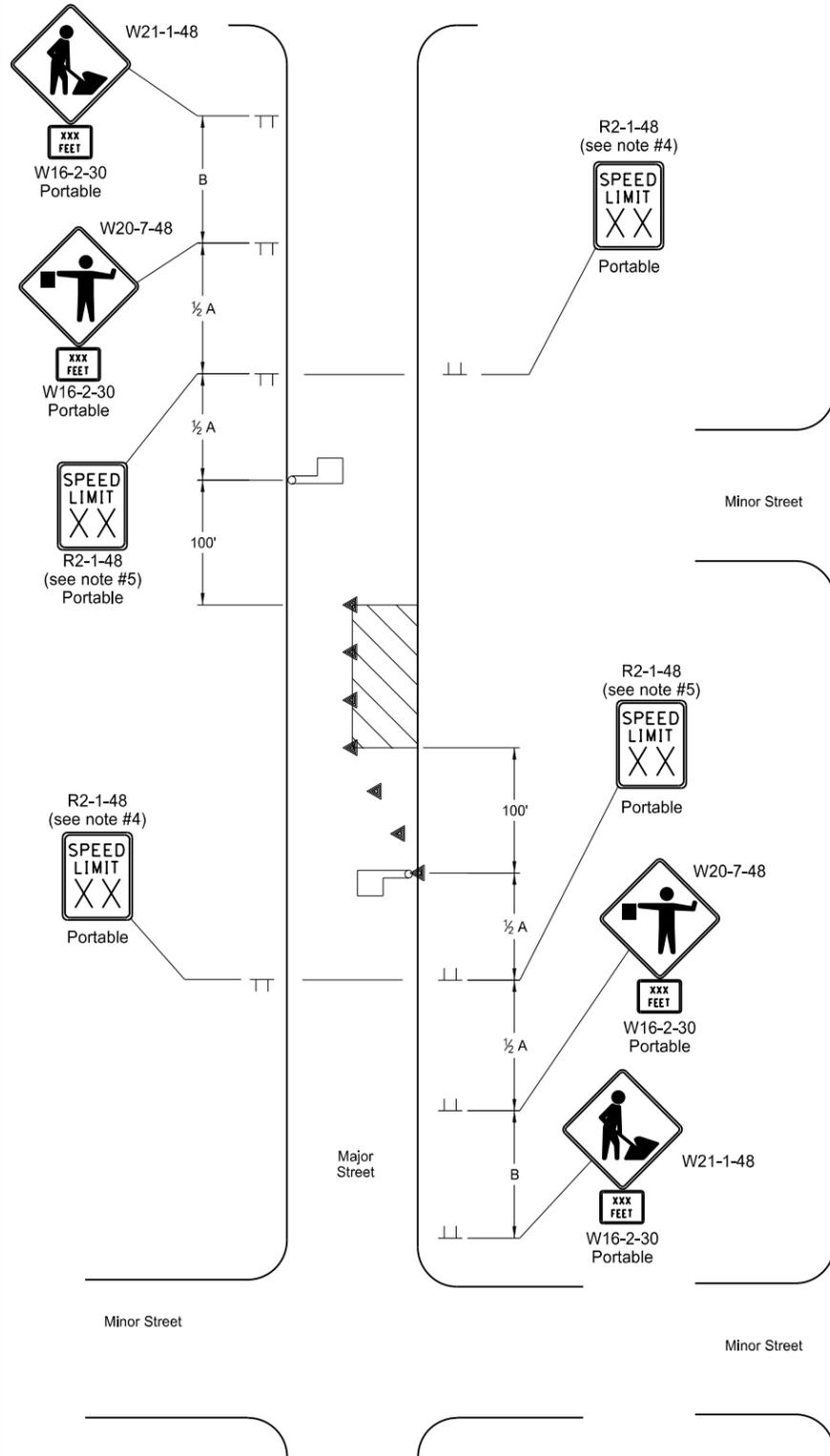
Note: The number of sandbags are based on a wind speed of 55 MPH. The sandbags are assumed to be placed at or near the ends of the skids.

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

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LANE CLOSURES ON URBAN STREETS LAYOUTS

D-704-25

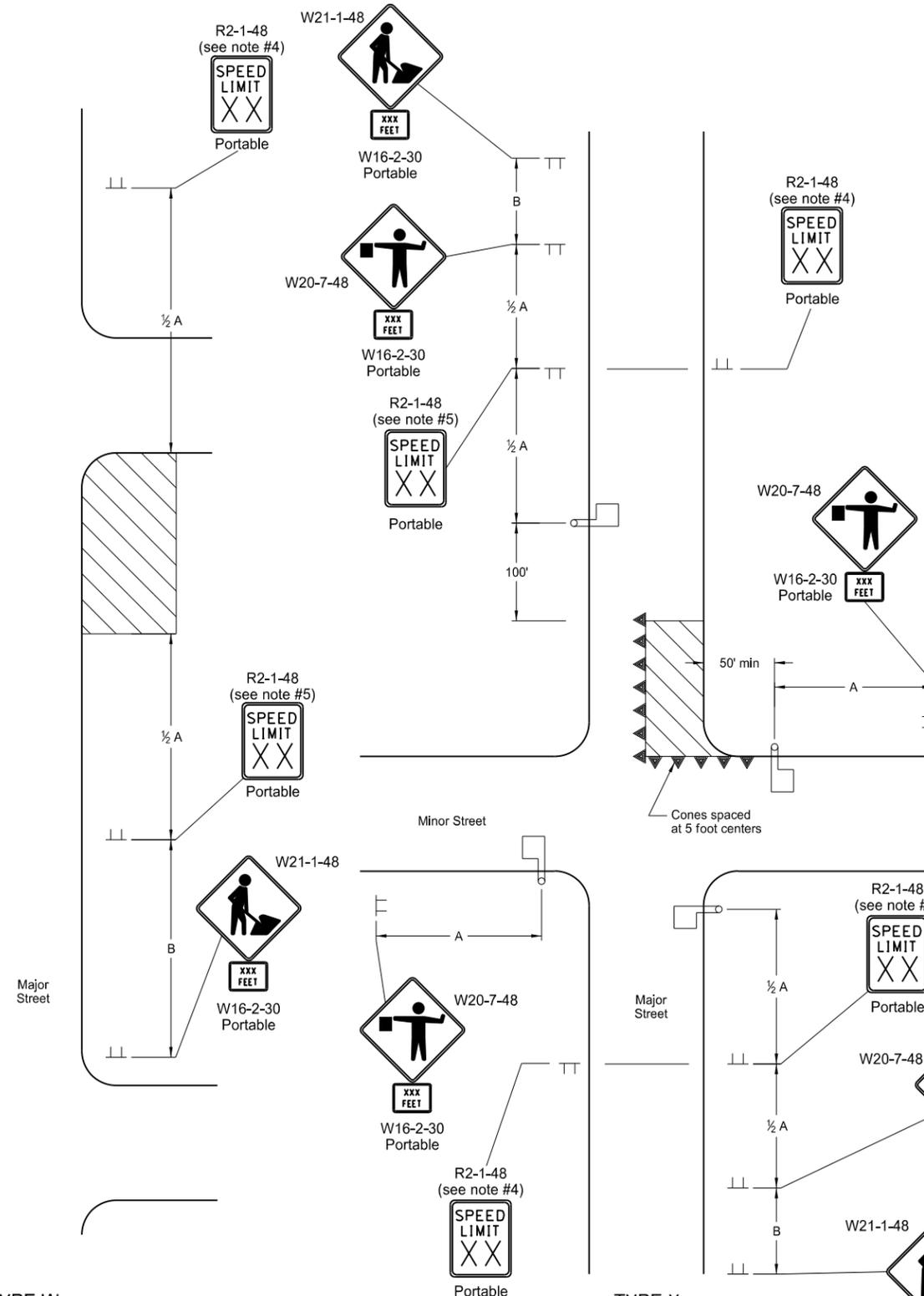


TYPE V
LANE CLOSURE ON URBAN STREET

When portion of roadway is closed to traffic only during daylight hours (mid block location).

TYPE W
WORK BEYOND CURB ON URBAN STREET

When work area is outside of driving lane and no closure is necessary

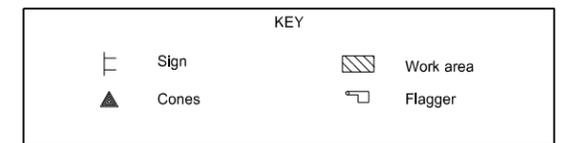


TYPE X
LANE CLOSURE NEAR INTERSECTION ON URBAN STREET

When portion of roadway is closed to traffic only during daylight hours (end block location).

- Notes
- For Type V: The contractor will be allowed to work only on one side of the roadway at a time so as not to block off any more than one lane of traffic.
 - When parking is present, the signs shall be placed so they are entirely visible above the parked vehicles or placed at the edge of the parking area so they are visible to oncoming traffic. These signs may be skid mounted when placed on the roadway surface.
 - Delineator cones used for tapering traffic shall be placed at 3 equal spaces. Delineator cones for tangents shall be spaced at dimension "S". "S" = the numerical value of speed limit.
 - The speed limit shall be re-established. The exact speed limit shall be determined in the field, dependent on location and conditions.
 - The reduced speed limit shall be determined dependent on the in place speed limit before construction. The speed limit reduction should not exceed 10 mph below the existing speed limit, unless the design speed of the work zone feature has been reduced below the 10 mph. In this case, the speed limit reduction shall not exceed 30 MPH. Where speed limits are to be reduced more than 30 MPH, a second speed limit sign shall be installed with the desired speed reduction but shall not exceed 30 MPH. The second speed limit sign shall be placed at 1/2 B.
 - When warning signs are used in urban areas and the signs are not portable, flags shall be installed. The flags shall be 24 inches square, mounted perpendicular to the edges of the diamond sign, and at such a distance above the edge so that when the flag is limp it will not touch the sign. Rural areas will not require flags.
 - Existing speed limit signs within a reduced speed zone shall be covered.
 - Where necessary, safe speed to be determined by the Engineer.
 - The contractor has the option of using portable sign supports in lieu of post mounted signs in accordance with the NDDOT Standard Specifications.
 - Urban projects do not need the G20-55-96 and R2-1a-24 signs.

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

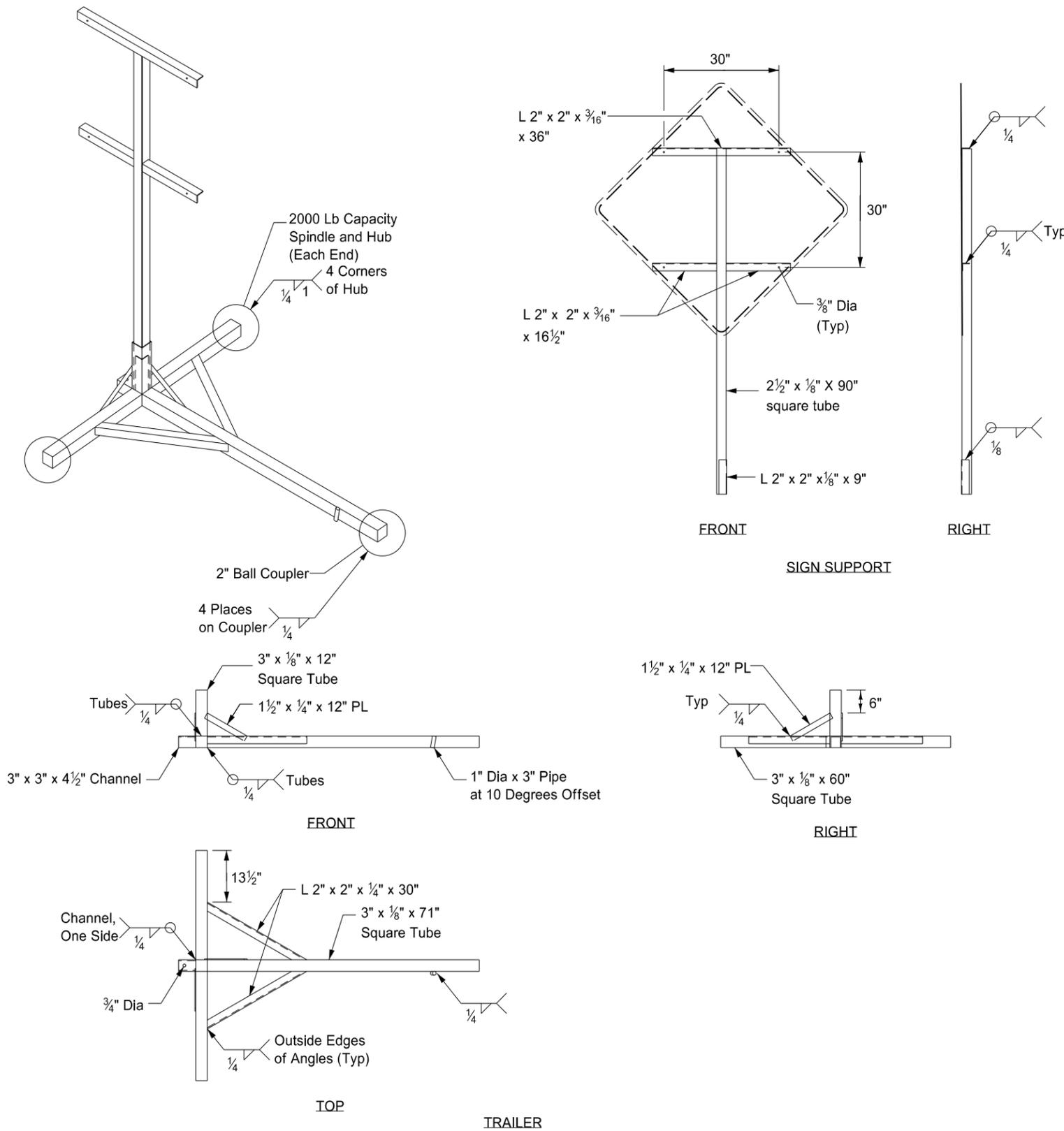


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PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50



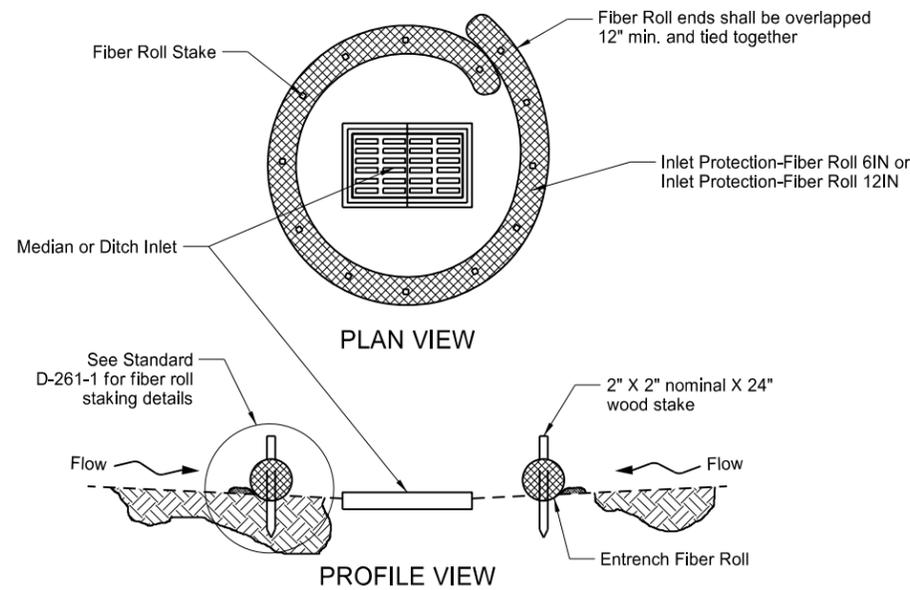
Notes:

- 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.

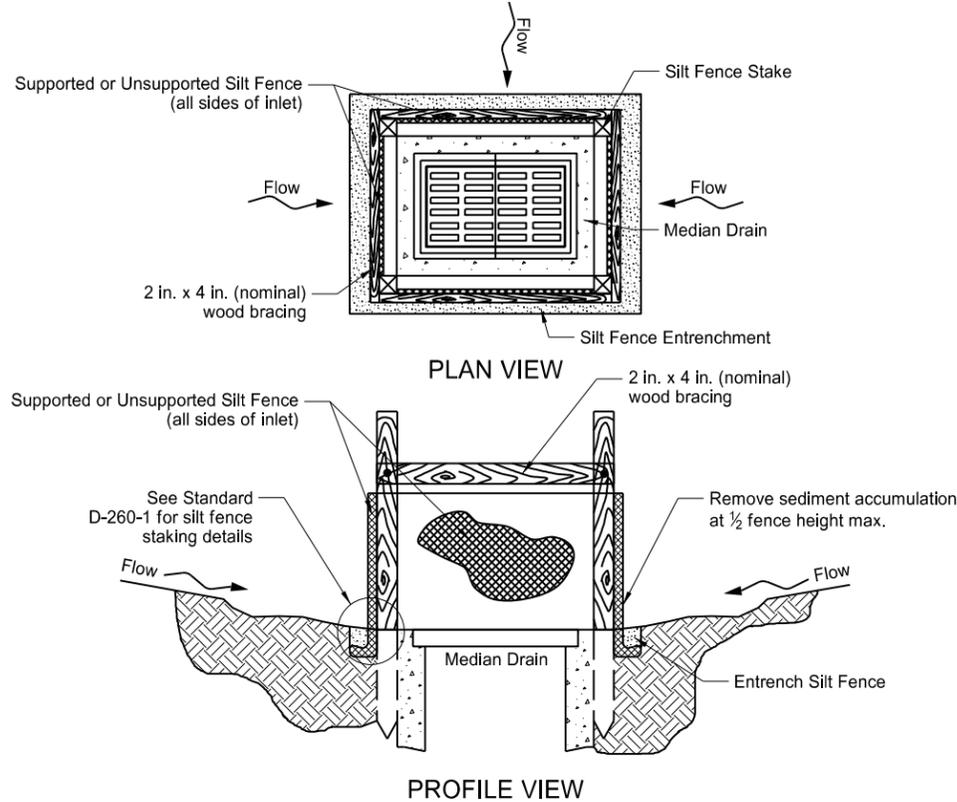
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11-23-10	
REVISIONS	
DATE	CHANGE

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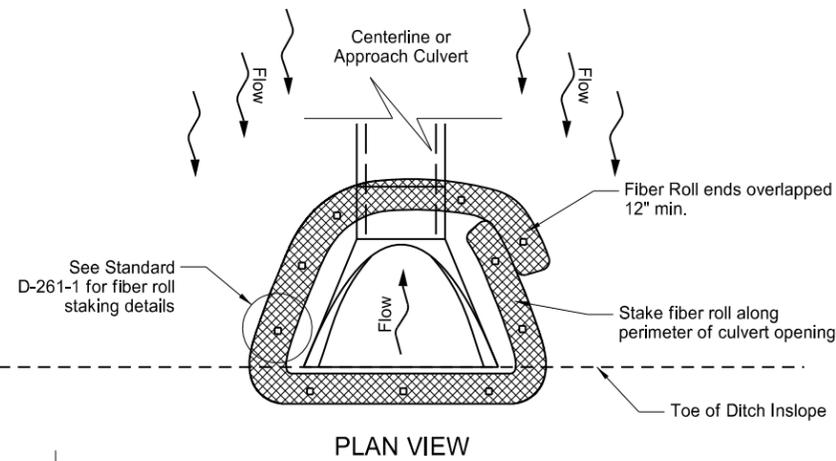
EROSION AND SILTATION CONTROLS
MEDIAN OR DITCH INLET PROTECTION



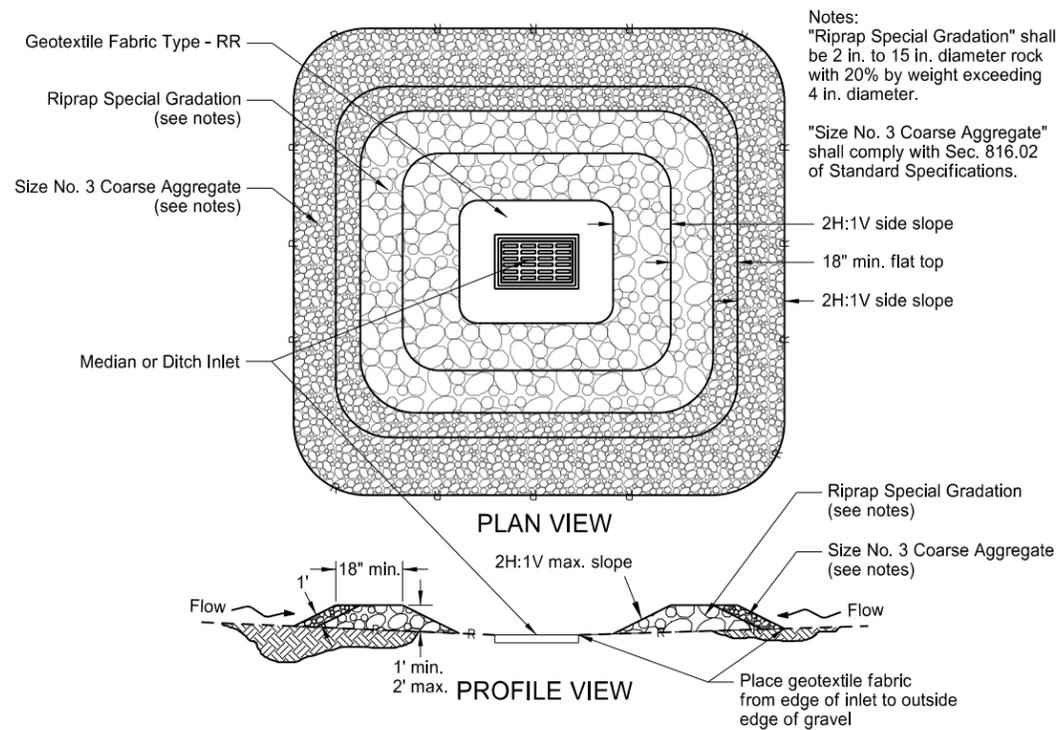
FIBER ROLL PROTECTION (MEDIAN OR DITCH INLET)



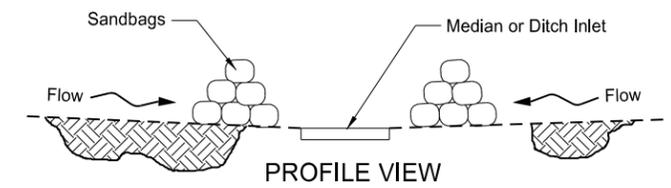
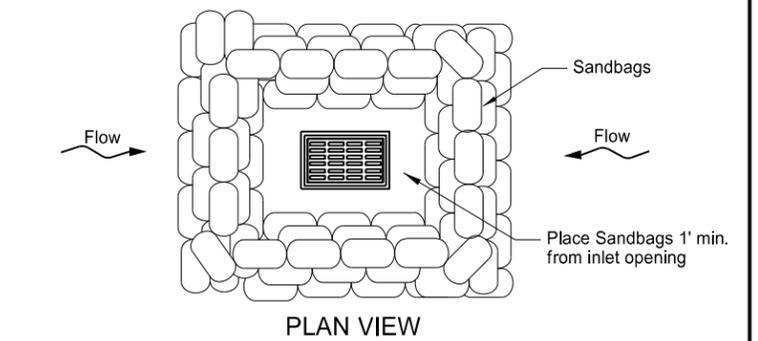
SILT FENCE PROTECTION (MEDIAN OR DITCH INLET)



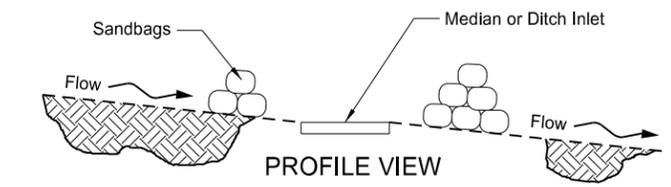
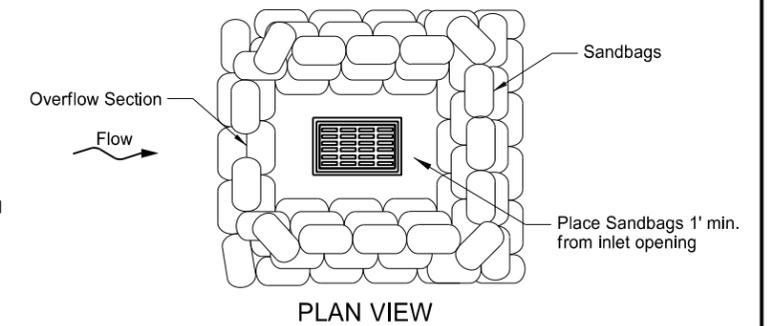
FIBER ROLL PROTECTION (INLET OF CULVERT)



GRAVEL INLET PROTECTION (MEDIAN OR DITCH INLET)



SANDBAG PROTECTION (LOW POINT)



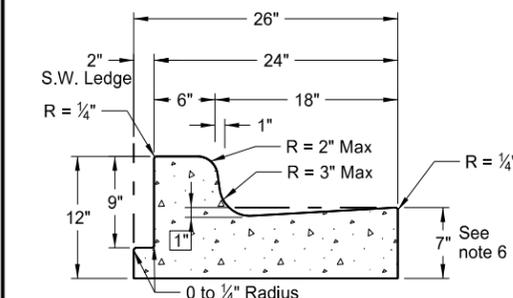
SANDBAG PROTECTION (ON SLOPE)

Notes:
"Riprap Special Gradation" shall be 2 in. to 15 in. diameter rock with 20% by weight exceeding 4 in. diameter.
"Size No. 3 Coarse Aggregate" shall comply with Sec. 816.02 of Standard Specifications.

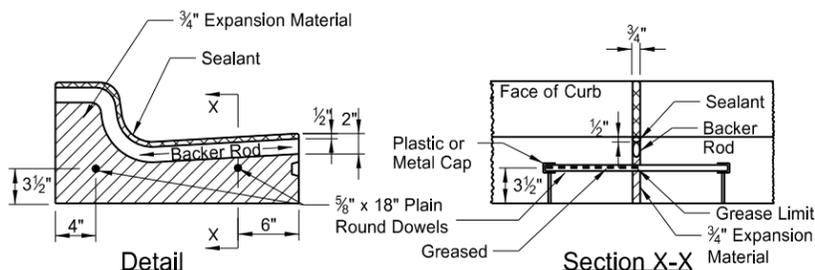
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-03-13	
REVISIONS	
DATE	CHANGE
06-26-14	Updated reference to standard drawing number for fiber roll staking details.
10-01-14	Updated reference to standard drawing number for silt fence.

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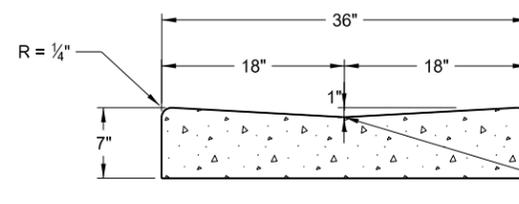
Curb & Gutter and Valley Gutter



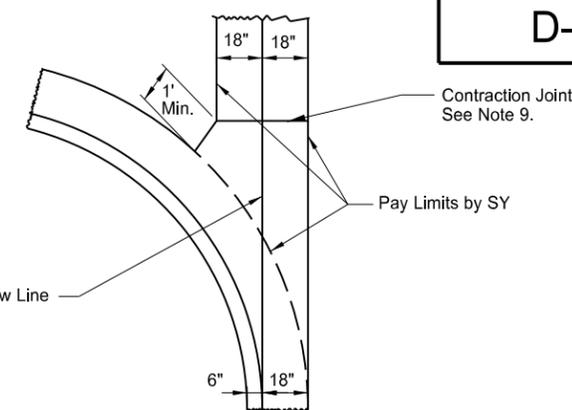
Curb & Gutter Type 1 (Sec. A & B)
Adjacent to Concrete Sidewalk,
Median, or Parking Lot.
(Sec. A shown. See Sec B for
additional details.)



Isolation Joint



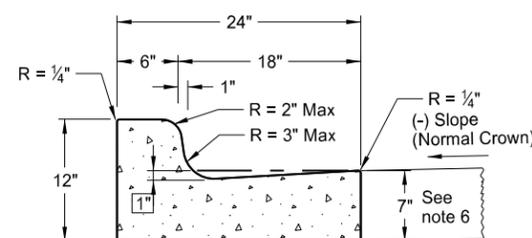
36" Concrete Valley Gutter Detail



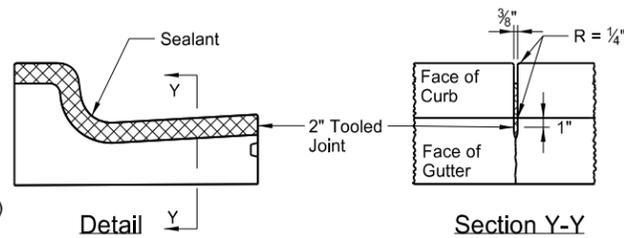
36" Concrete Valley Gutter Plan

NOTES:

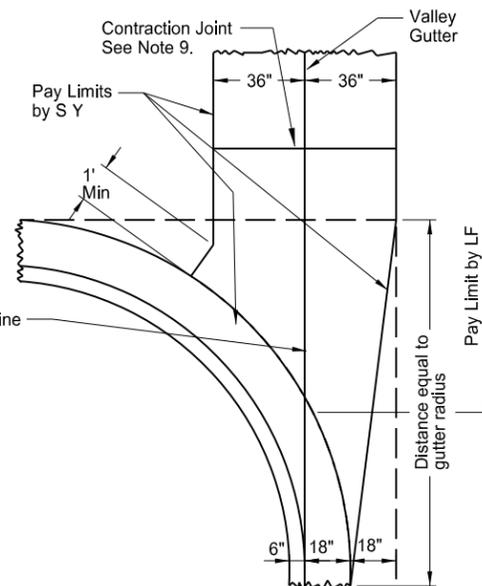
1. Curb and Gutter Type 1 (Sec. A & B) to be used. Section "A" to be used with (-) pavement slopes and section "B" to be used with (+) pavement slopes.
2. Contraction Joints: Tool the Curb & Gutter 2" as shown on the contraction joint details.
3. Isolation Joints: Isolation joint material shall be 3/4" 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" preformed 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.



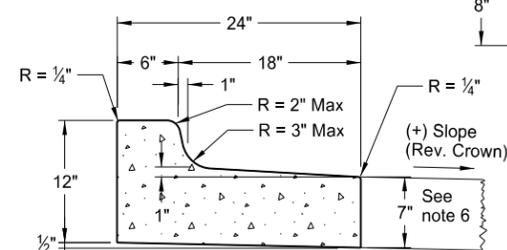
Curb & Gutter Type 1 (Sec. A)



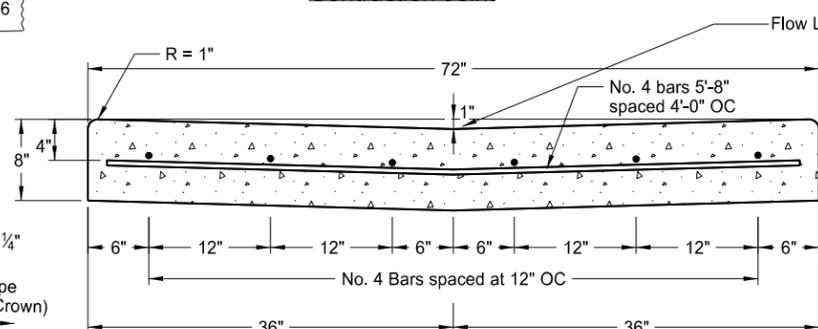
Contraction Joint



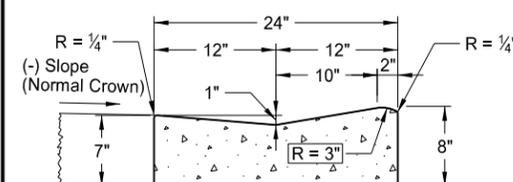
72" Concrete Valley Gutter Plan



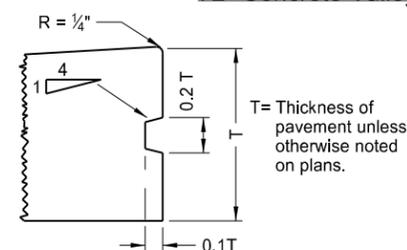
Curb & Gutter Type 1 (Sec. B)



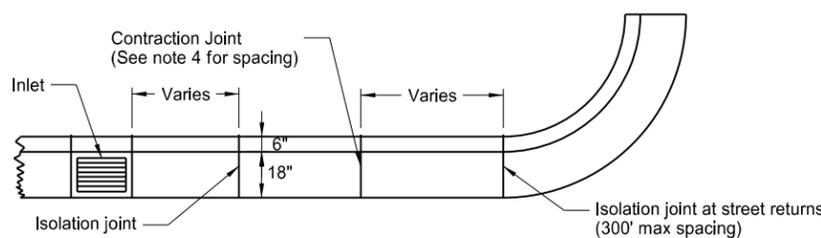
72" Concrete Valley Gutter Detail



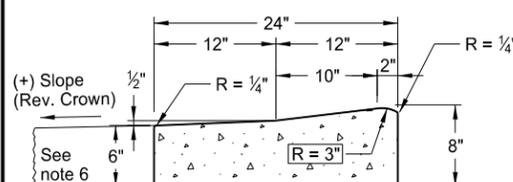
Mountable Curb & Gutter Type 1 (Sec. A)



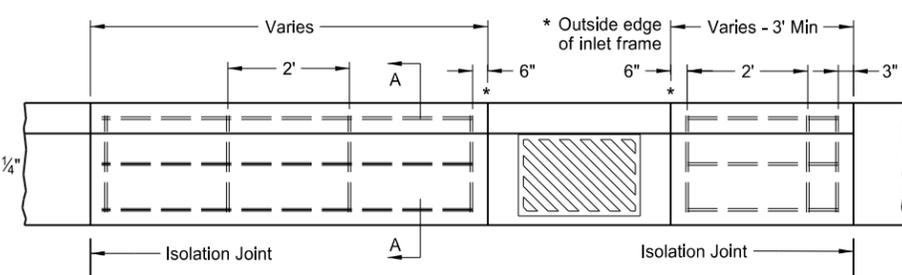
Keyway Detail for Curb & Gutter
(To be used with PCC Pavement and Drives)



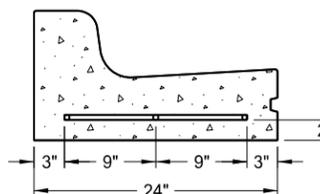
Joint Location Detail



Mountable Curb & Gutter Type 1 (Sec. B)



Curb & Gutter Reinforcing at Inlets



Section A-A

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.

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8-7-2013	
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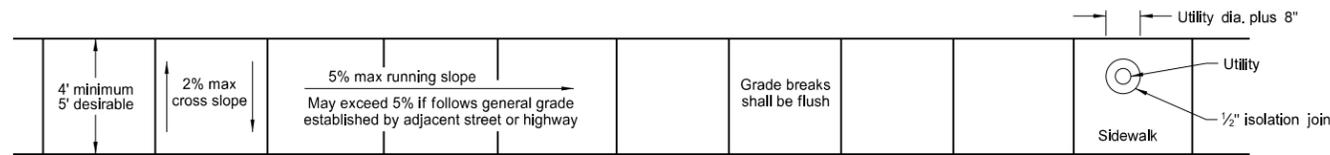
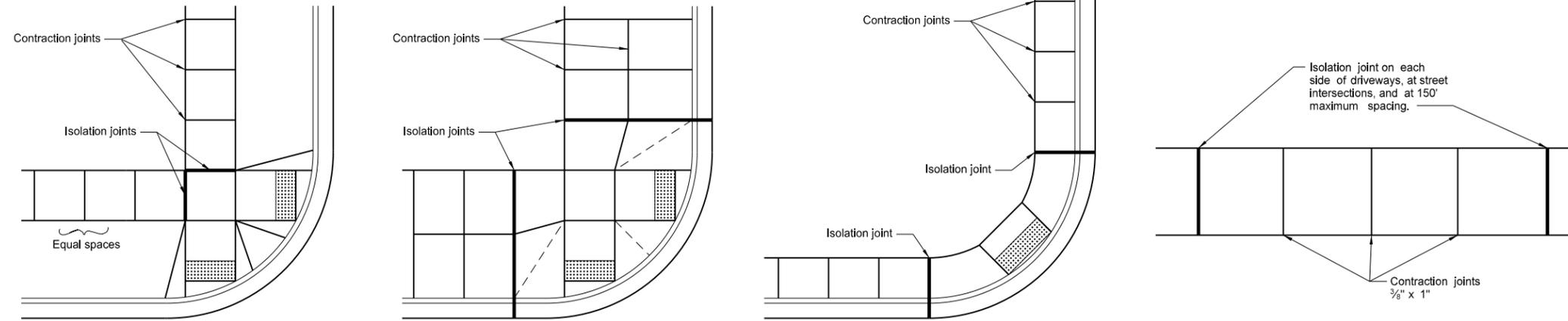
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SIDEWALK

D-750-2

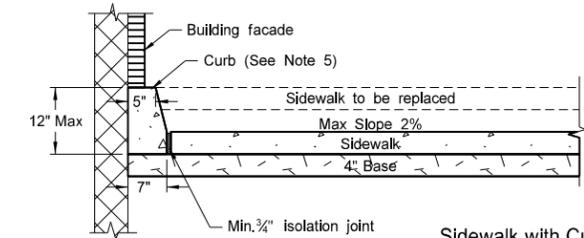
NOTES:

1. Curb ramp and detectable warning panel layouts are for informational purposes only. See Standard Drawing D-750-3 for curb ramp and detectable warning panel details.
2. Joint Spacing: Transverse contraction joint spacing shall vary from 4' to 6' to create approximate square panels. Longitudinal contraction joints shall be used where the sidewalk width is 8' or greater, and shall be spaced at half the sidewalk width. The contraction joints may be sawed or a grooved joint, and shall be a minimum of 1/3 the depth of the concrete. When the sidewalk is adjacent to the curb & gutter, the sidewalk joint spacing shall be varied to match up with the curb & gutter joints. Isolation joints should also be used between separately poured concretes, or between old and new concrete. The cost for all labor, equipment, and material necessary to construct contraction and isolation joints shall be included in the price bid for sidewalk concrete.
3. 4" sidewalk concrete thickness to be used unless otherwise specified in the plans.
4. 4" base material thickness to be used unless otherwise specified in the plans. 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."
5. Landscaping is preferred to modify existing ground slope changes as needed. If not possible, such as adjacent buildings, a vertical curb may be used as shown in the detail below. The curb will be paid for at the unit price bid for the item "Curb - Type I" per lineal foot.

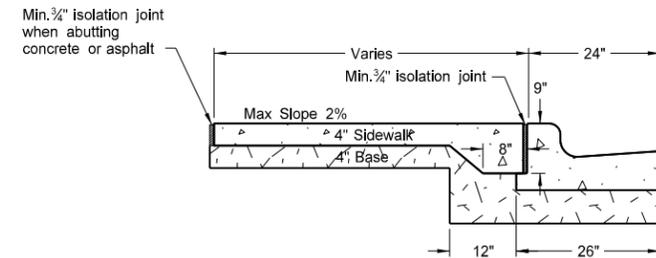


Sidewalk Width and Grade

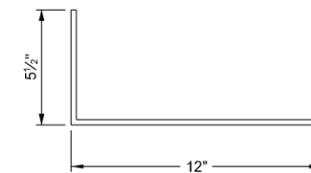
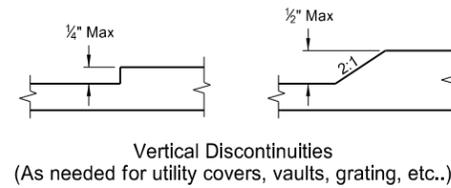
Utility Blockout



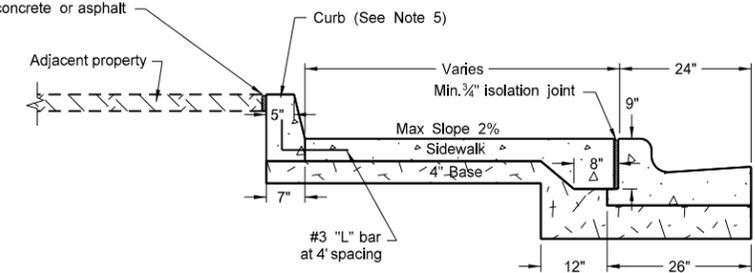
Sidewalk with Curb Detail (Building face application)



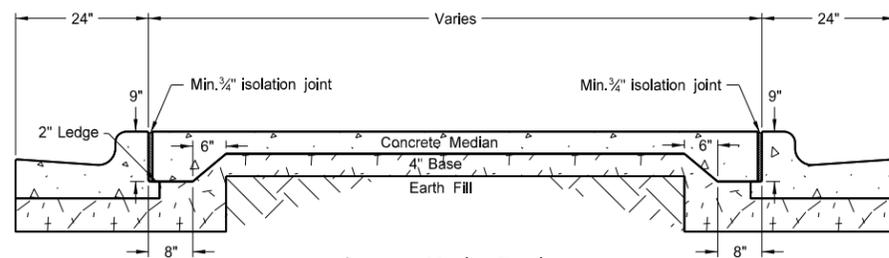
Sidewalk Detail (Installed adjacent to curb and gutter)



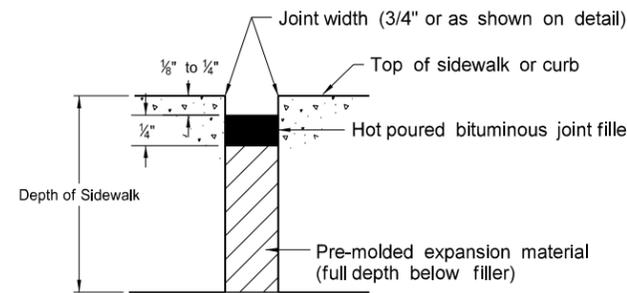
Min. 3/4" isolation joint when abutting concrete or asphalt



Sidewalk with Curb Detail (Adjacent property application)



Concrete Median Detail



Typical Isolation Joint Seal (longitudinal and transverse)

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CURB RAMP DETAILS

D-750-3

+More Right of Way

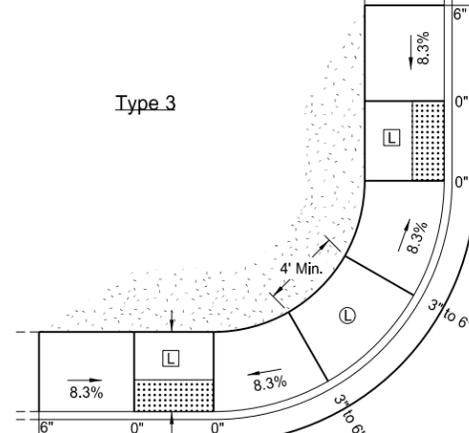
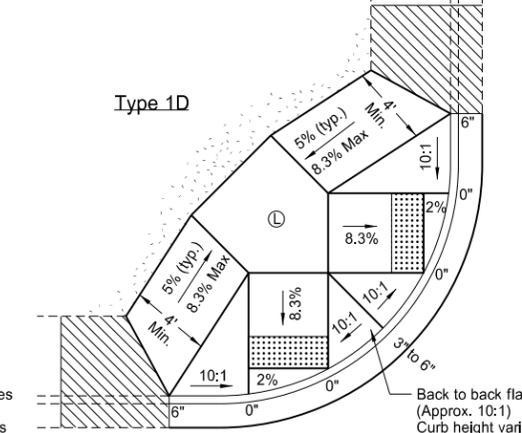
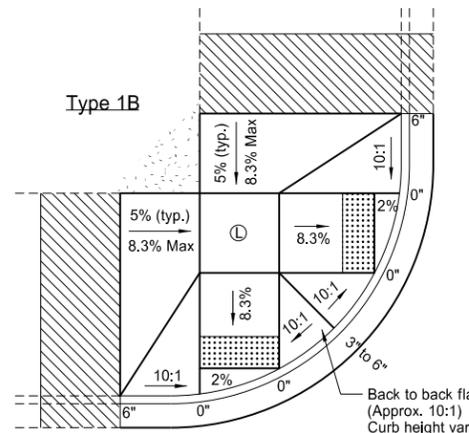
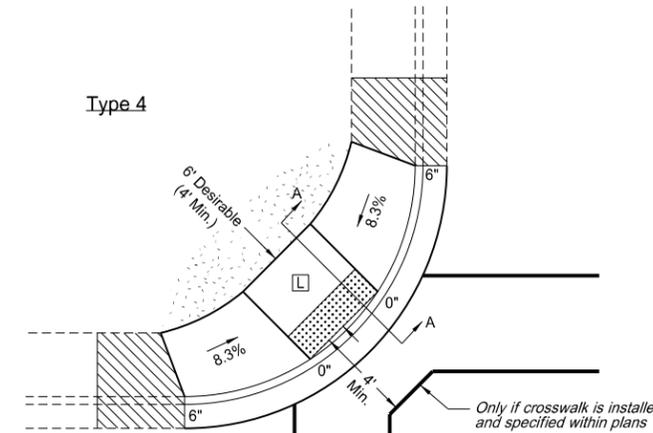
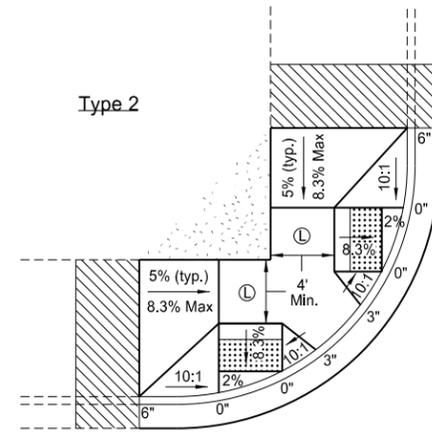
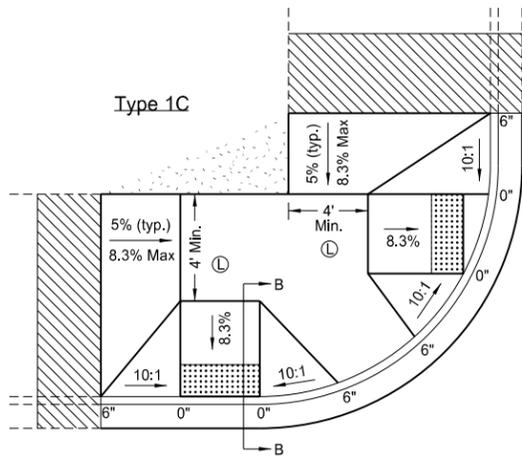
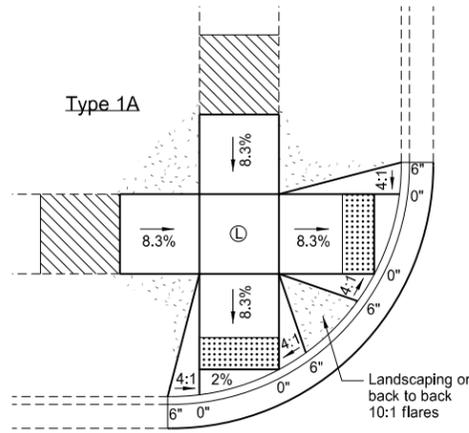
Less Right of Way

NOTES:

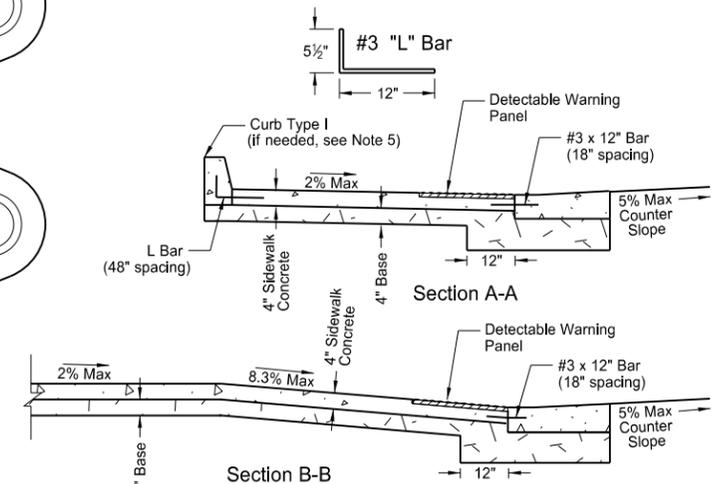
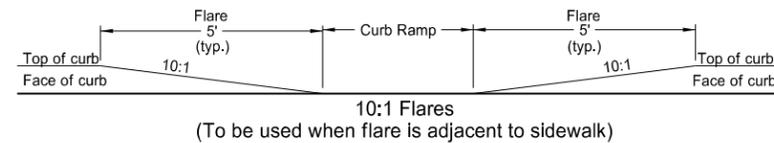
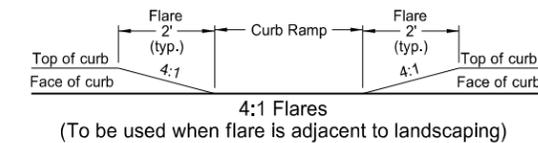
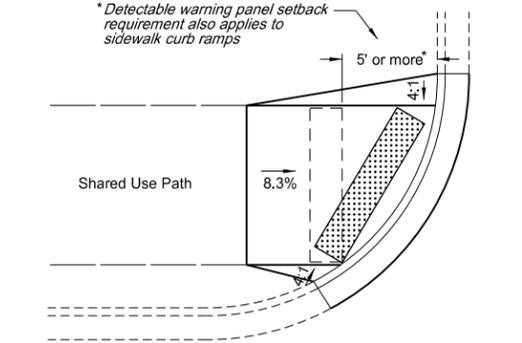
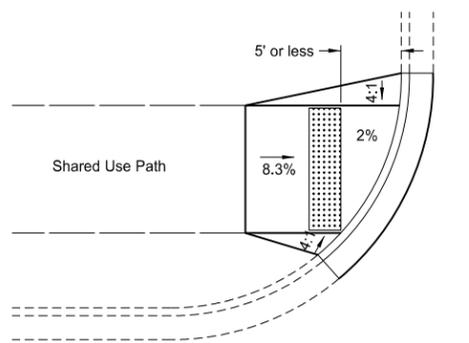
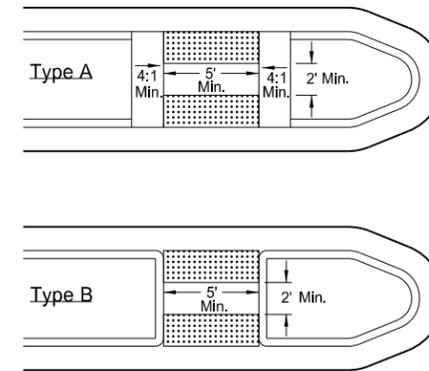
- Ramp width is defined as the useable portion of the ramp, excluding flares if used.
Curb ramp width should match the existing sidewalk width. 4' width minimum.
Ramp width for shared-use paths should match the existing shared use path width.
Ramp length shall be maximum of 15'.
- Landings shall be a minimum of 4' x 4' and shall have a max 2% slope in any direction. Landings are desirably 5' x 5' or larger.
- Detectable warning panels shall match the ramp width. Radial panels may also be used. The detectable warning panel may be located within the lower landing.
- The pedestrian access route shall be continuous 4' min. width. Max 2% cross slope applies to all concrete, excluding flares.
- Landscaping is preferred to modify existing ground slope changes as needed. If not possible, such as adjacent buildings, a vertical curb may be used as shown in the detail below. The curb will be paid for at the unit price bid for the item "Curb - Type I" per lineal foot.

LEGEND:

- : Detectable Warning Panel
- : Landscaping
- : Transitional tie-in segment if needed for retrofits. Max grade slope 8.3%.
- : Upper Landing
- : Lower Landing
- 0", 3", or 6" : Curb Height
- 8.3% : All slopes shown are max grades. Flatter slopes may be used.



Median Refuge Islands (Cut-Through)



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-26-13	
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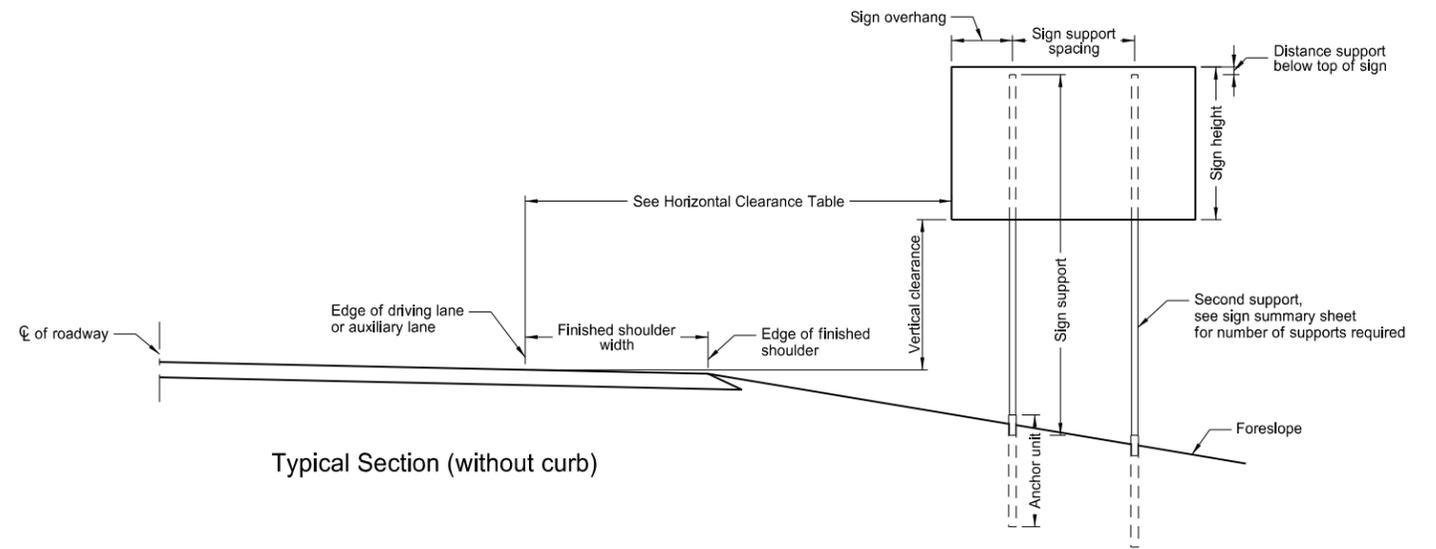
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PERFORATED TUBE ASSEMBLY DETAILS

D-754-23

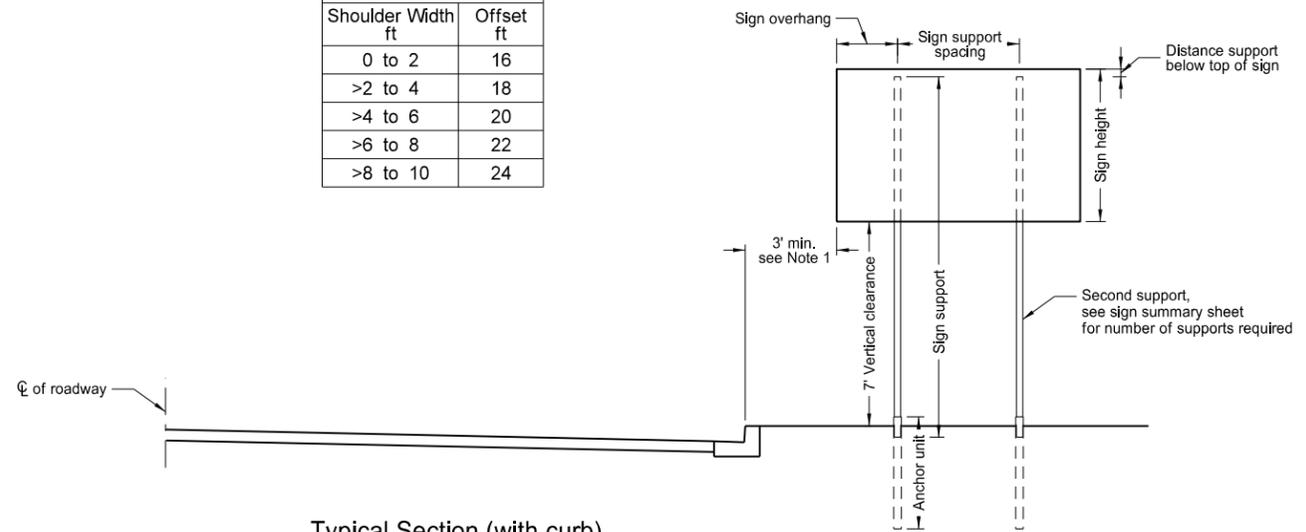
Notes:

1. Curbed Roadways: The clearance from the face of the curb should be 3' except where right of way or sidewalk width is limited, a minimum clearance of 2' shall be provided. The horizontal clearance may need to be increased to maintain a minimum sidewalk clear width of 4' from the sign support, not including any attached curb.
2. Minimum vertical clearance: Signs installed at the side of the road in rural districts shall be at least 5' measured from the bottom of the sign to the edge of the driving lane or auxiliary lane. Where parking or pedestrian movements occur, the clearance to the bottom of the sign shall be at least 7'.
- Signs on expressways shall be installed with a minimum height of 7'.
- Adopt-a-highway signs installed on Freeways shall be at least 7' above the edge of the driving lane.
- The vertical clearance shall have a maximum height of 6" above the vertical clearance specified above.
3. Offset signs: Where signs are placed at least 30 feet or more from the edge of the traveled way, the height to the bottom of such sign shall be 5' above the edge of the driving lane.
4. The clearance from edge of shared use path to edge of sign should be 3' except where width is limited, a minimum clearance of 2' shall be provided.

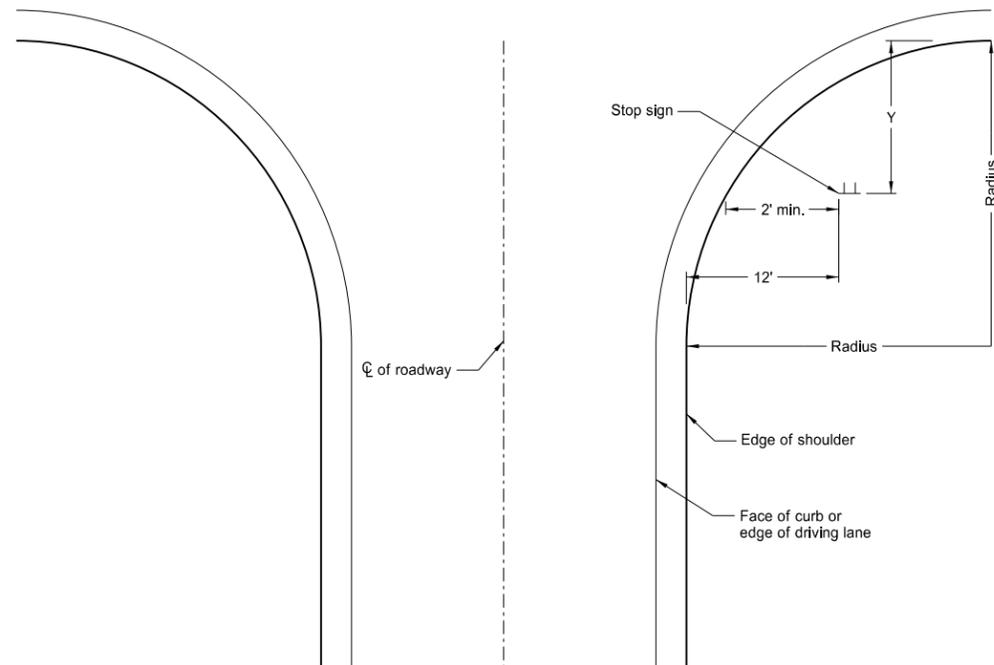


Typical Section (without curb)

Horizontal Clearance Table	
Shoulder Width ft	Offset ft
0 to 2	16
>2 to 4	18
>4 to 6	20
>6 to 8	22
>8 to 10	24



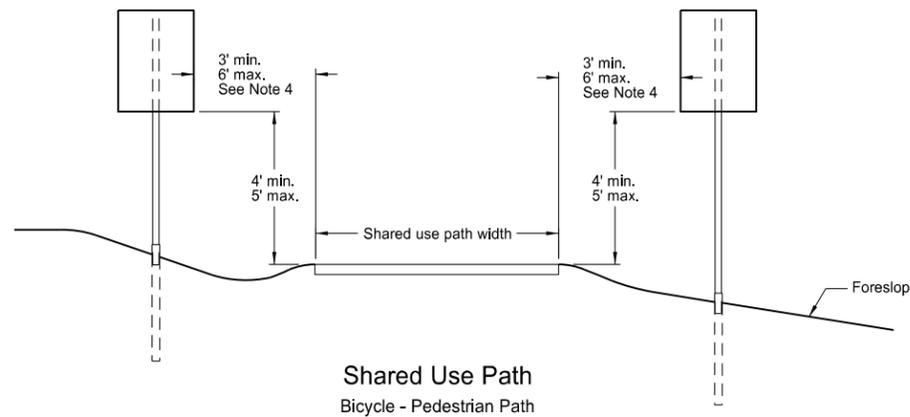
Typical Section (with curb)
Residential or Business District



Stop Sign Location
Wide Throat Intersection

This layout is to be used for the placement of "Stop" signs.

Radius ft.	Y-max. ft.	Y-min. ft.
40	50	15
45	50	18
50	50	21
55	50	25
60	50	28
65	50	32
70	50	35
75	50	39
80	50	43



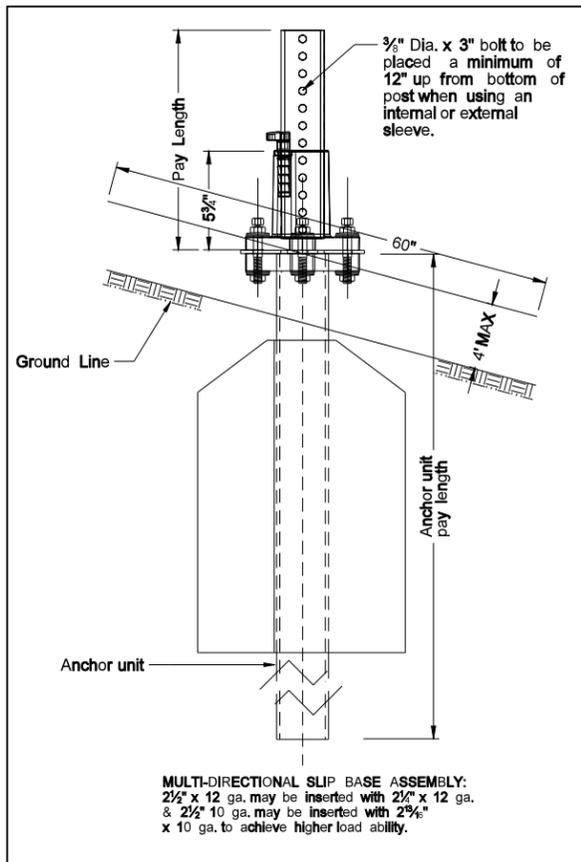
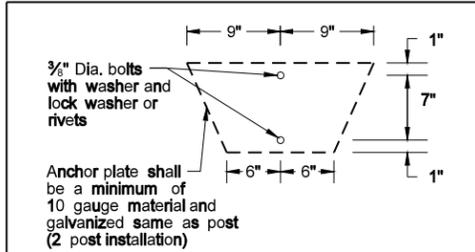
Shared Use Path
Bicycle - Pedestrian Path

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
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7-8-14	Revised note 2, added note 4.

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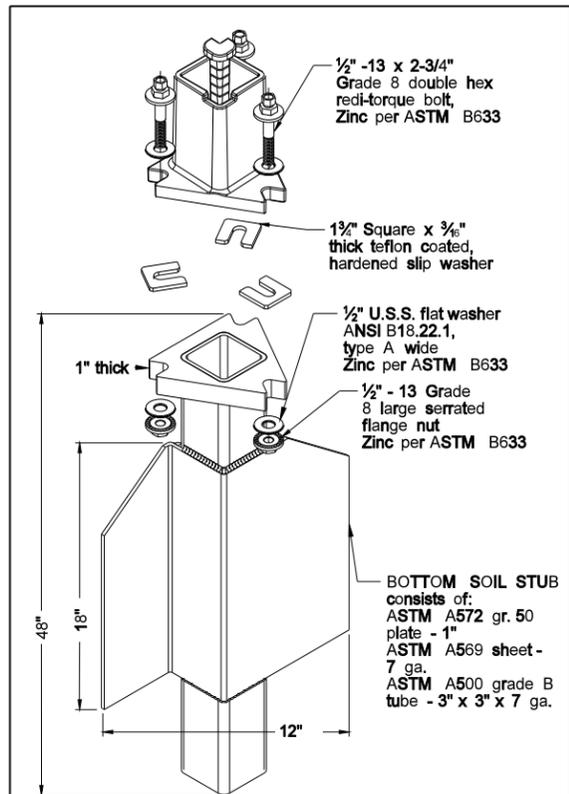
Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thickness Gauge	Sleeve Size In.	Wall Thickness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Gauge
1	2	12			No	2 1/2	12
1	2 1/2	12			No	2 1/2	12
1	2 1/2	12			(B)	3(C)	7
1	2 1/2	10			Yes		7
1	2 1/2	12	2 1/2(D)	12	Yes		7
1	2 1/2	12	2 1/2	12	Yes		7
2	2 1/2	10			Yes		7
2	2 1/2	12	2 1/2(D)	12	Yes		7
2	2 1/2	12	2 1/2	12	Yes		7
3 & 4	2 1/2	12			Yes		7
3 & 4	2 1/2	10			Yes		7
3 & 4	2 1/2	12	2 1/2	12	Yes		7
3 & 4	2 1/2	12	2 1/2(D)	12	Yes		7
3 & 4	2 1/2	10	2 1/2	10	Yes		7

(B) - The 2 1/2", 12 gauge posts do not need breakaway bases when placed in standard soils, but require a shim as specified by the manufacturer. The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.
 (C) - 3" anchor unit
 (D) - 2 1/2" x 12 ga. x 18" minimum length external sleeve required.

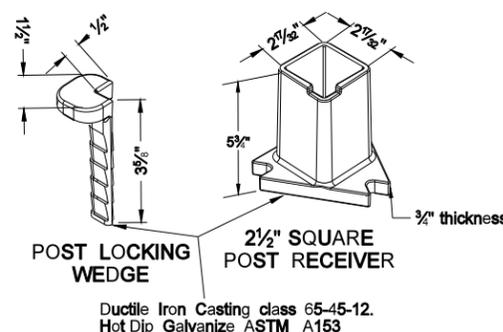


MULTI-DIRECTIONAL SLIP BASE ASSEMBLY:
 2 1/2" x 12 ga. may be inserted with 2 1/2" x 12 ga. & 2 1/2" 10 ga. may be inserted with 2 3/8" x 10 ga. to achieve higher load ability.

Mounting Details Perforated Tube

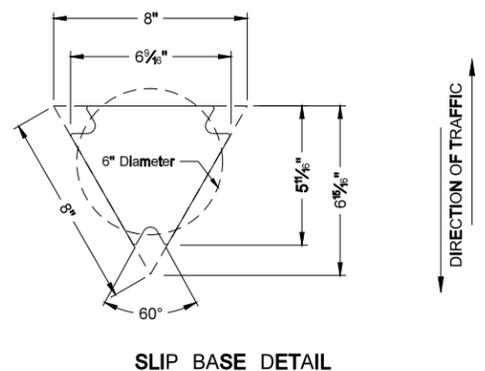


SLIP BASE FOR 2 1/2" POST



2 1/2" SQUARE POST RECEIVER

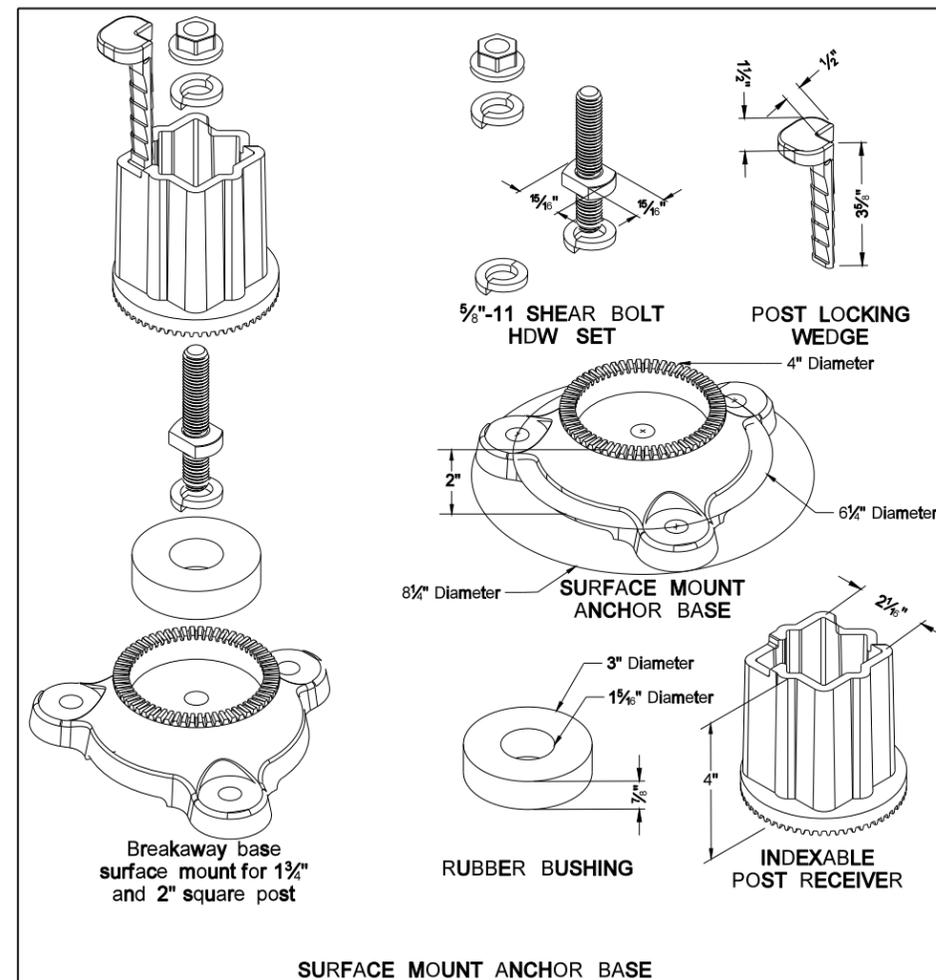
Ductile Iron Casting class 65-45-12. Hot Dip Galvanize ASTM A153



SLIP BASE DETAIL

Properties of Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness in.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In. ⁴	Cross Sect. 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 1/2 x 2 1/2	0.105	12	2.773	0.561	0.695	0.499
2 3/8 x 2 3/8	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	0.783

The 2 3/8" size 10 gauge is shown as 2.19" size on the plans; The 2 1/2" size is shown as 2.51" size on the plans.



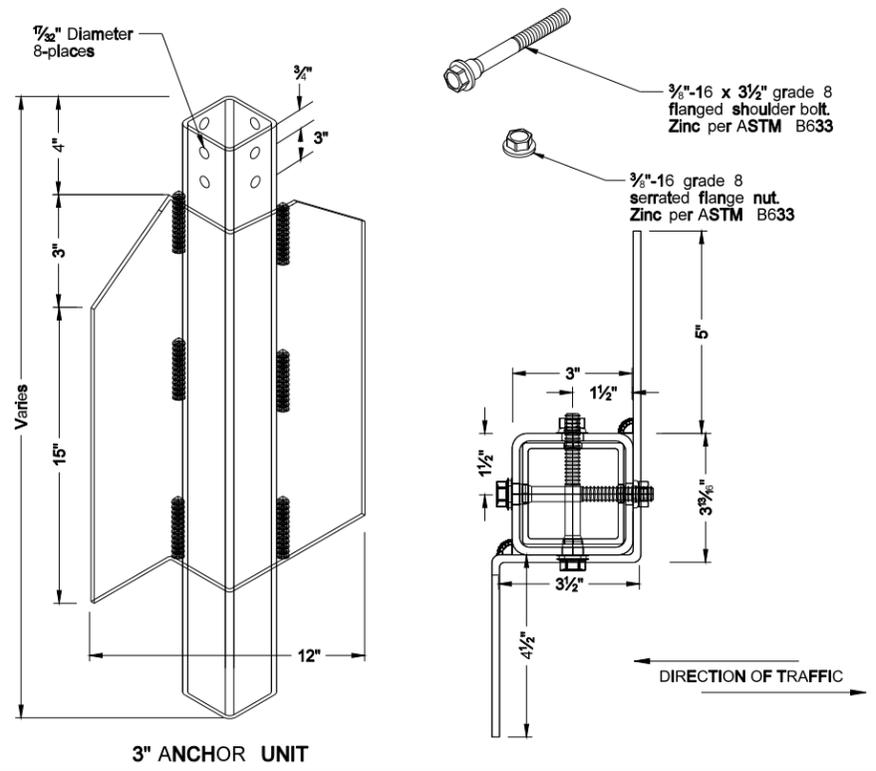
SURFACE MOUNT ANCHOR BASE

NOTE:

- 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement shall be made above and below post location and also back and ahead of post.
- Anchor material shall be 7 gauge H.R.P.O. Commercial quality ASTM A569 and 3" x 3" x 7" gauge ASTM A500 grade B. Anchor shall have a yield strength 43.9 KSI and tensile strength of 59.3 KSI. Anchor shall be hot dipped galvanized per ASTM A123/153. All tolerances on anchor unit and slip base bottom assembly are +/- 0.005" unless otherwise noted.
- When used in concrete sidewalk, anchor shall be the same concept without the wings.
- Four post signs shall have over 8" between the first and fourth posts.
- Installation procedures as per manufacturers recommendation.
- Concrete fasteners for surface mount breakaway base shall be a minimum 1/2" diameter x 4" grade 8.

SHOULDER BOLT

Shimming agent to reduce tolerance between 3" anchor unit and 2 1/2" post. (standard 3/8" diameter grade 8 bolt may be used with proper shim)



3" ANCHOR UNIT

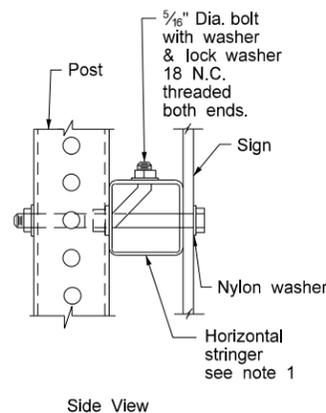
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE

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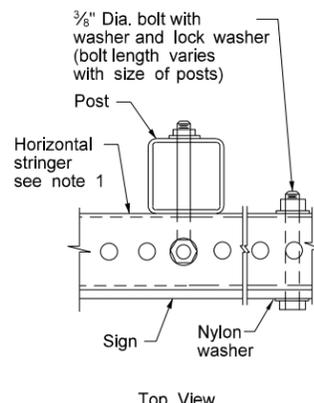
Mounting Details Perforated Tube

Note:

- Horizontal stringers - In lieu of perforated tubes, the contractor may substitute z bar stringers. The z bar stringers shall be 1 1/2" x 3/16" thick, 1.08 lbs./ft aluminum or 3.16 lbs./ft steel.
- Metal washers used on sign face shall have a minimum outside diameter of 5/16" ± 1/65" and 10 gauge thickness.
- No Parking Signs: All no parking signs with directional arrows shall be placed at a 30 to 45 degree angle with the line of traffic flow. No parking signs required at the above angles may have the support turned to the correct angle. If the no parking sign is placed with another sign that has to be placed at a 90 degree angle with the line of traffic flow, the detailed angle strap should be used to mount the no parking sign. Flat washers and lock washers shall be used with all nylon washers.
- In lieu of using the bent bolt to attach the post to the stringer, the contractor may choose to punch the sign backing and place the bolt through the sign, the stringer and the post.
- 4" vertical clearance of anchor or breakaway base. The 4" x 60" measurement shall be made above and below post location and also back and ahead of post.

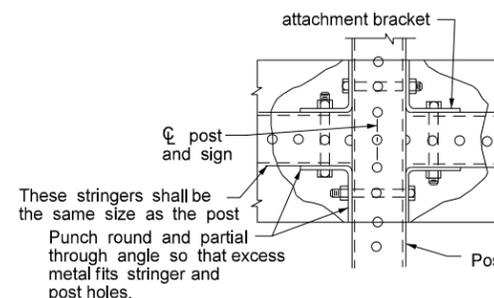


Side View



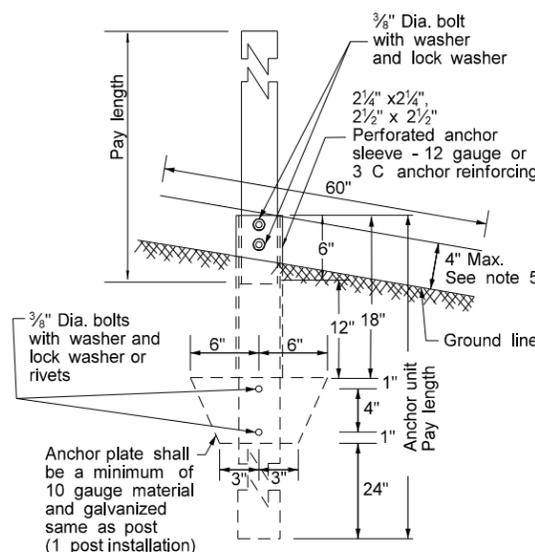
Top View

STRINGER MOUNTING
(WITH STRINGER IN FRONT OF POST)



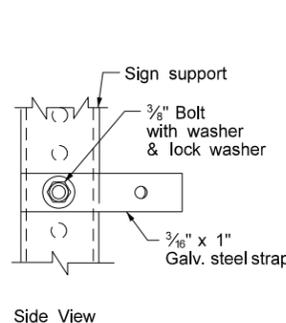
These stringers shall be the same size as the post. Punch round and partial through angle so that excess metal fits stringer and post holes.

STREET NAME SIGNS
AND ONE WAY SIGNS
SINGLE POST ASSEMBLY
ONE STRINGER OR
BACK TO BACK MOUNTING

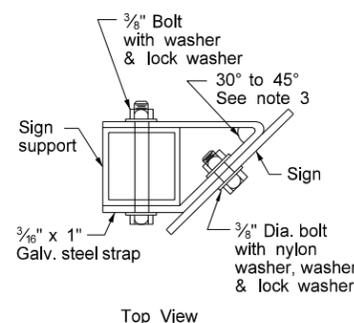


Anchor plate shall be a minimum of 10 gauge material and galvanized same as post (1 post installation)

ANCHOR UNIT AND
POST ASSEMBLY

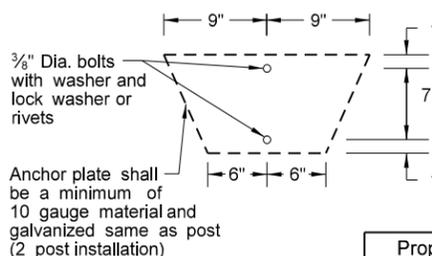


Side View

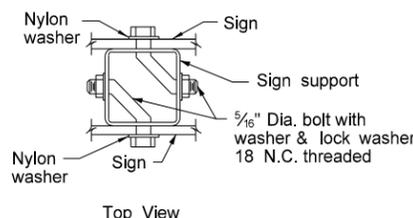


Top View

STRAP DETAIL

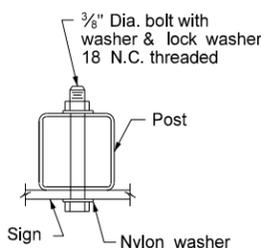


Anchor plate shall be a minimum of 10 gauge material and galvanized same as post (2 post installation)



Top View

BACK TO BACK
MOUNTING



BOLT MOUNTING

Properties of Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In. ⁴	Cross Sect. 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 3/8" x 2 3/8"	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	0.783

The 2 3/8" size 10 gauge is shown as 2.19" size on the plans. The 2 1/2" size is shown as 2.51" size on the plans.

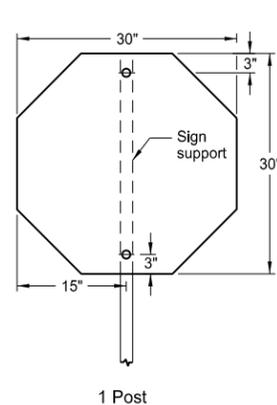
Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thickness Gauge	Sleeve Size In.	Wall Thickness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Gauge
1	2	12			No	2 1/4	12
1	2 1/4	12			No	2 1/2	12
1	2 1/2	12			(B)	3(C)	7
1	2 1/2	10			Yes		7
1	2 1/4	12	2 1/2(D)	12	Yes		7
1	2 1/2	12	2 1/4	12	Yes		7
2	2 1/2	10			Yes		7
2	2 1/4	12	2 1/2(D)	12	Yes		7
2	2 1/2	12	2 1/4	12	Yes		7
3 & 4	2 1/2	12			Yes		7
3 & 4	2 1/2	10			Yes		7
3 & 4	2 1/2	12	2 1/4	12	Yes		7
3 & 4	2 1/4	12	2 1/2(D)	12	Yes		7
3 & 4	2 1/2	10	2 3/8	10	Yes		7

(B) - The 2 1/2", 12 gauge posts do not need breakaway bases when placed in standard soils, but require a shim as specified by the manufacturer. The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.
(C) - 3" anchor unit
(D) - 2 1/2" x 12 ga. x 18" minimum length external sleeve required.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE
7-8-14	Revised Note 3

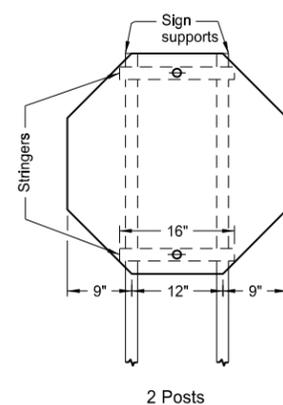
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Roger Weigel,
Registration Number
PE- 2930 ,
on 7/8/14 and the original document is stored at the
North Dakota Department
of Transportation

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

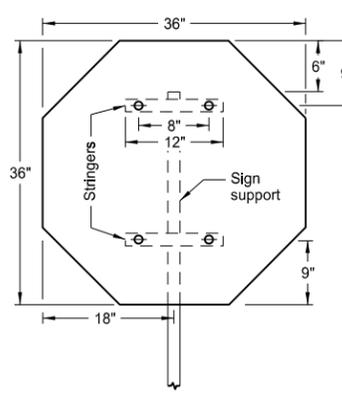


1 Post

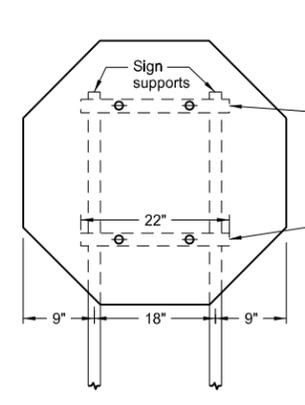
Assembly No. 1



2 Posts

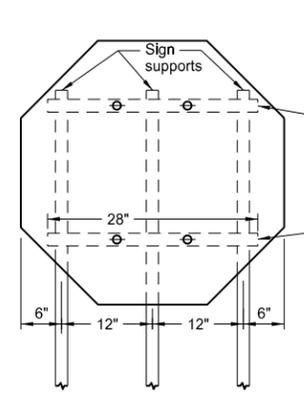


1 Post



2 Posts

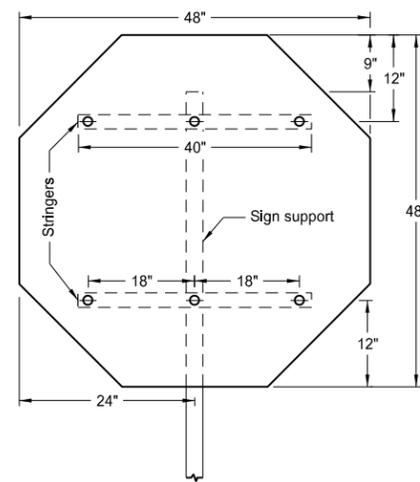
Assembly No. 2



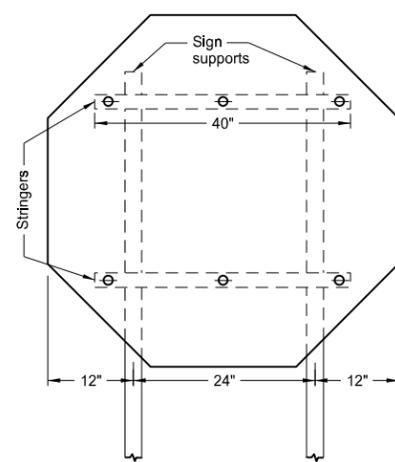
3 Posts

Notes:

1. See Standard D-754-25 for mounting details.
2. The minimum sign backing material thickness shall be 0.100 inch.
3. Perforated square tube stringer shall be 1½" x 1½".
4. All holes shall be punched round for 3/8" bolt.

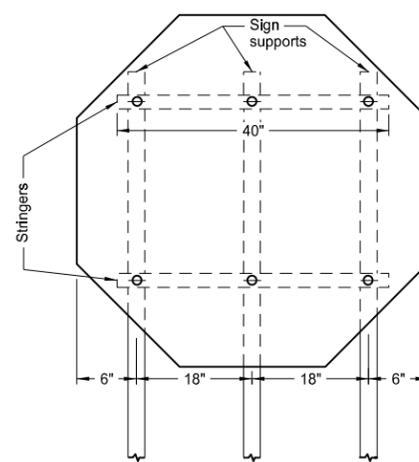


1 Post

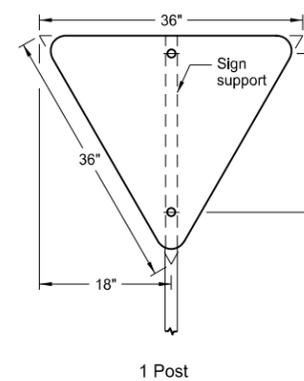


2 Posts

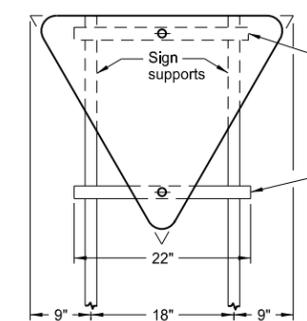
Assembly No. 3



3 Posts

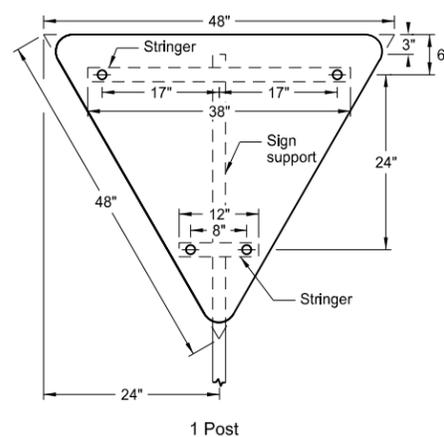


1 Post

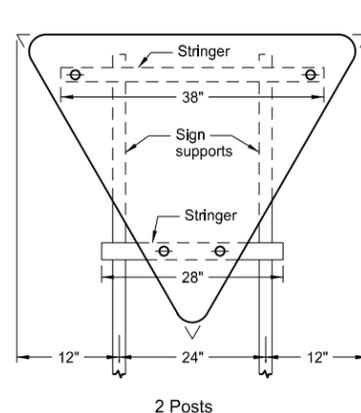


2 Posts

Assembly No. 4

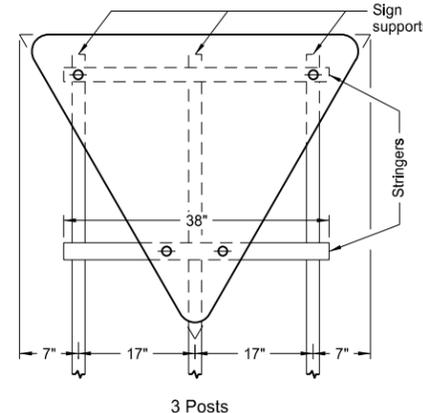


1 Post



2 Posts

Assembly No. 5

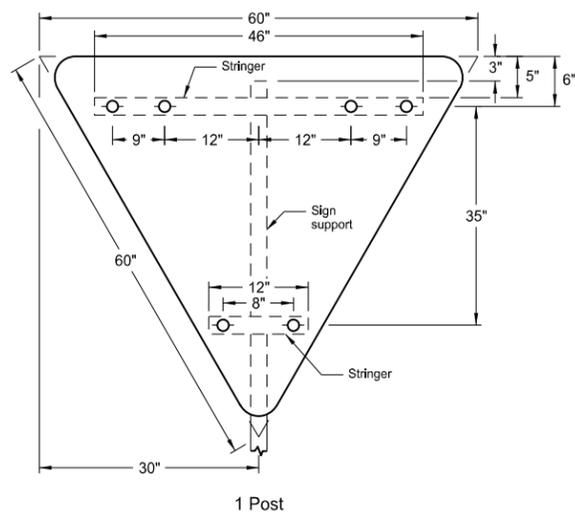


3 Posts

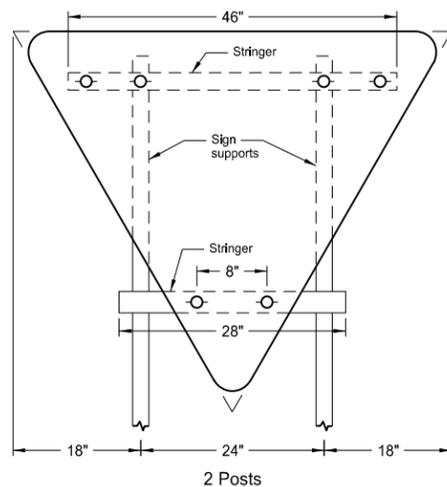
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE

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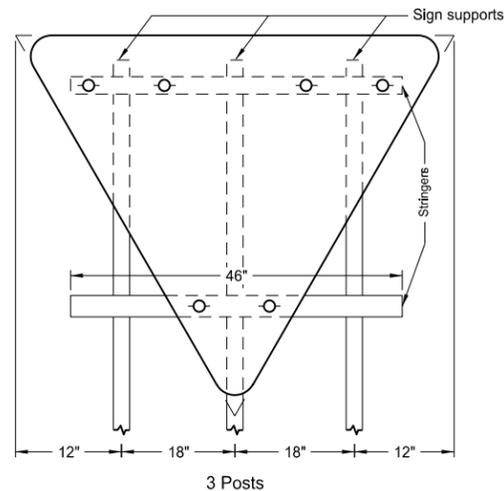
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS



1 Post



2 Posts

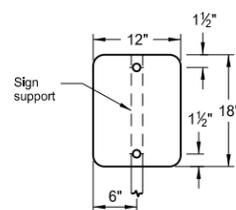


3 Posts

Assembly No. 6

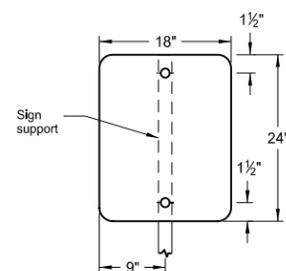
Notes:

1. See Standard D-754-25 for mounting details.
2. The minimum sign backing material thickness shall be 0.100 inch.
3. Perforated square tube stringer shall be 1 1/2" x 1 1/2".
4. All holes shall be punched round for 3/8" bolt.



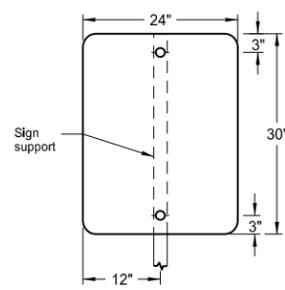
1 Post

Assembly No. 7



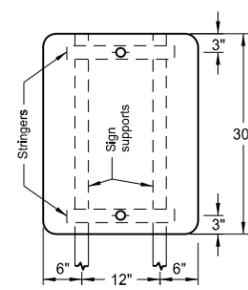
1 Post

Assembly No. 8

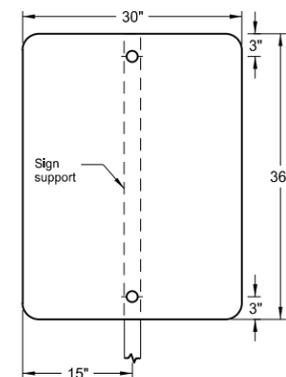


1 Post

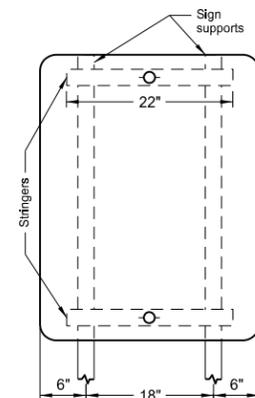
Assembly No. 9



2 Posts

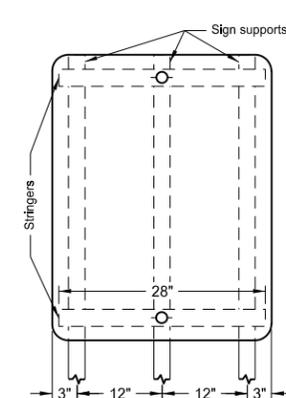


1 Post

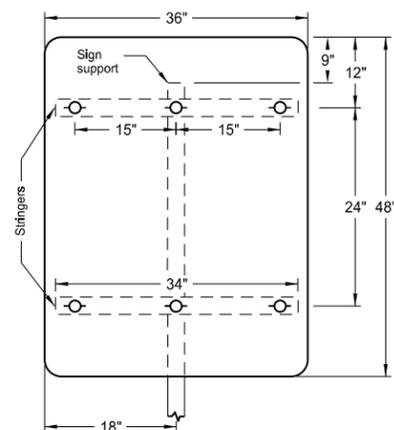


2 Posts

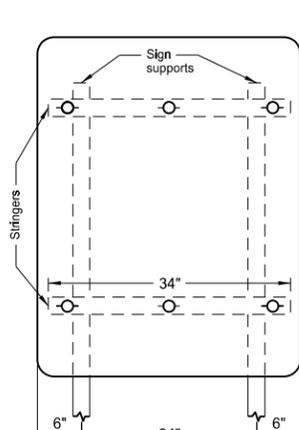
Assembly No. 10



3 Posts

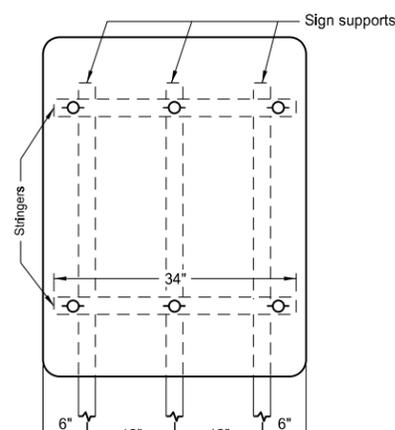


1 Post



2 Posts

Assembly No. 11

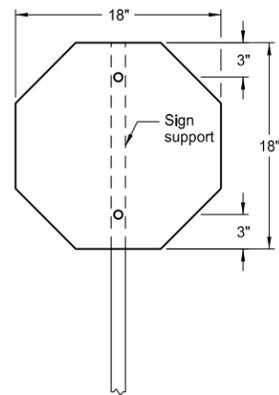


3 Posts

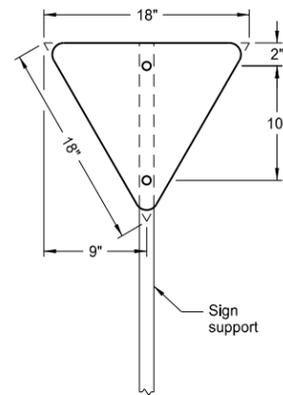
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE

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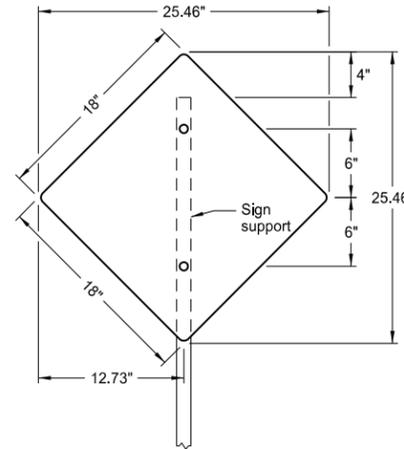
BIKE ROUTE SIGNS
PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS FOR
REGULATORY, WARNING AND GUIDE SIGNS



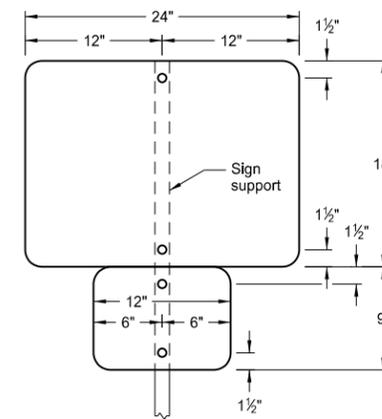
1 Post
Assembly No. 100



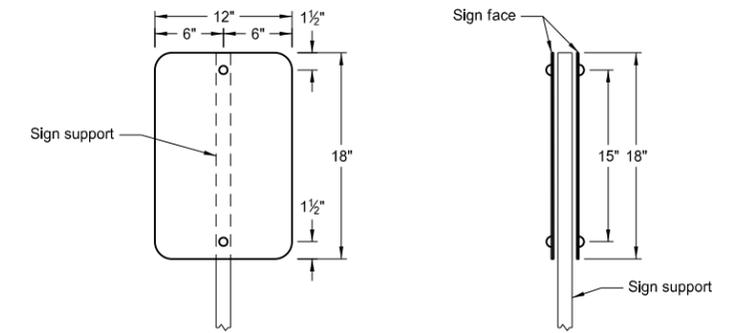
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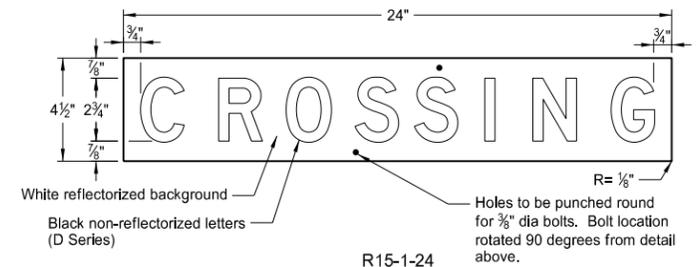
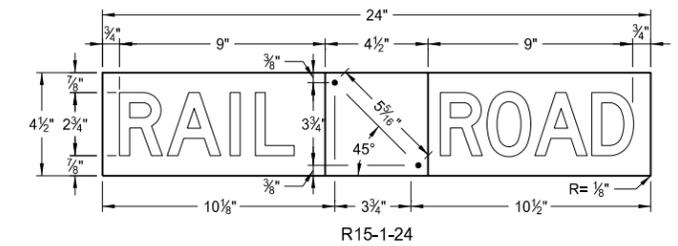
1 Post
Assembly No. 102



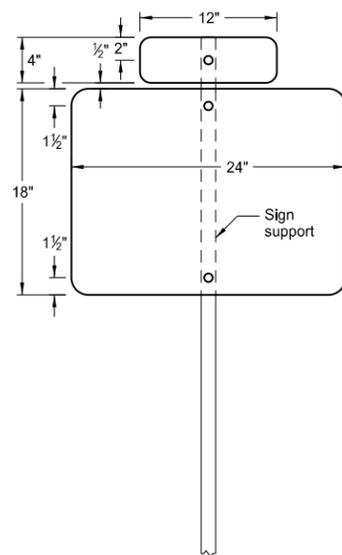
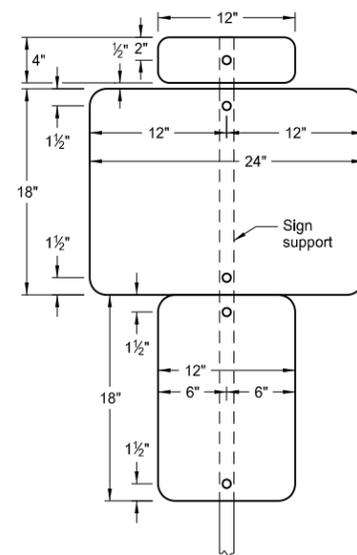
1 Post
Assembly No. 103



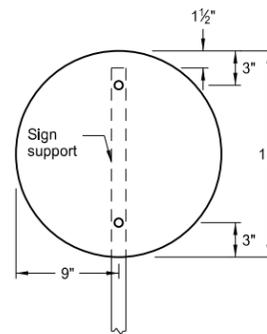
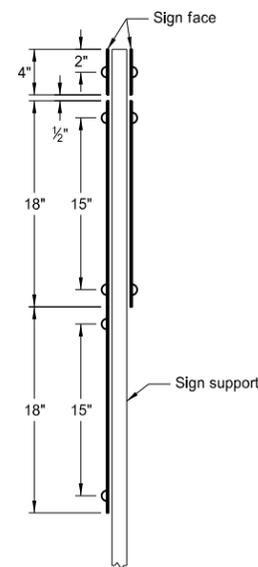
1 Post
back to back
Assembly No. 104



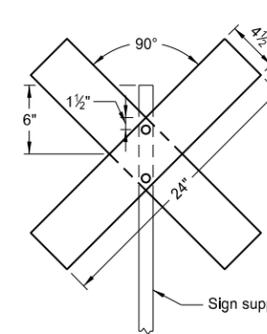
Railroad Crossing Sign Details



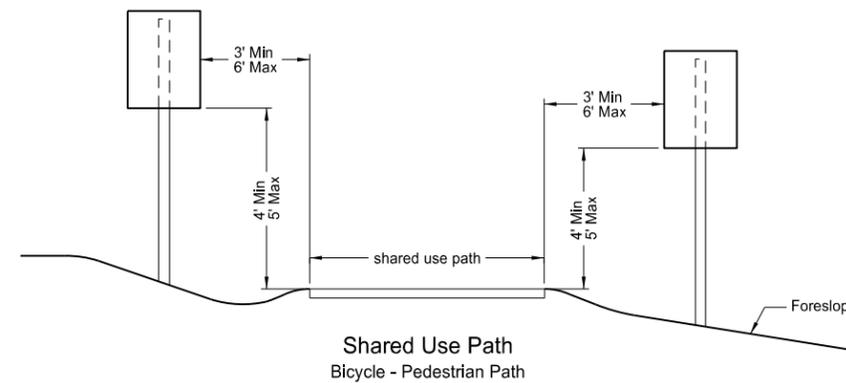
1 Post
back to back
Assembly No. 105



1 Post
Assembly No. 106



1 Post
Assembly No. 107



Shared Use Path
Bicycle - Pedestrian Path

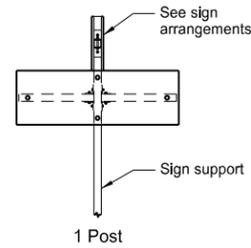
- Notes:
1. The minimum sign backing material thickness shall be 0.100 inch.
 2. All holes shall be punched round for 3/8" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE

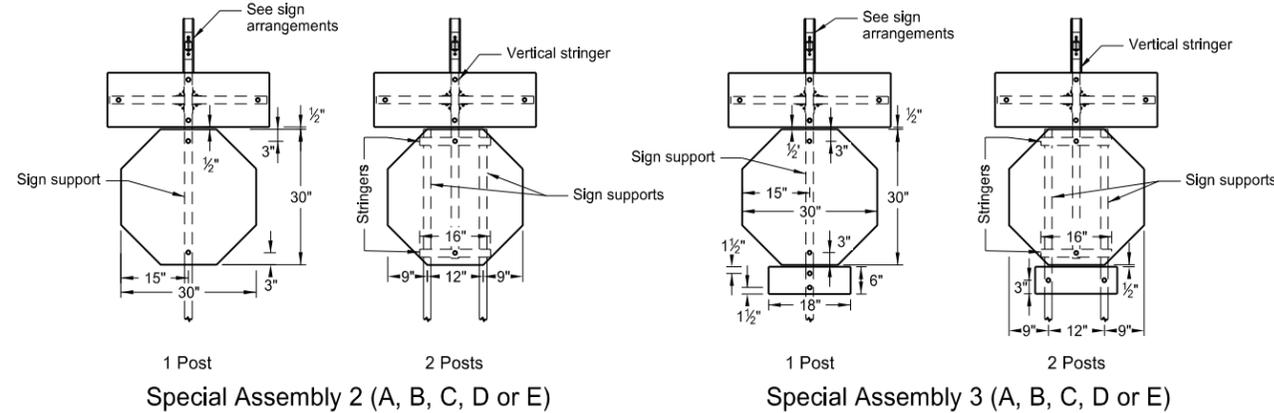
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SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS FOR STREET NAME SIGNS AND 911 SIGNS

- A - Single sign
- B - Single sign back to back
- C - Single sign each direction
- D - Single sign one direction, back to back other direction
- E - Back to back both directions

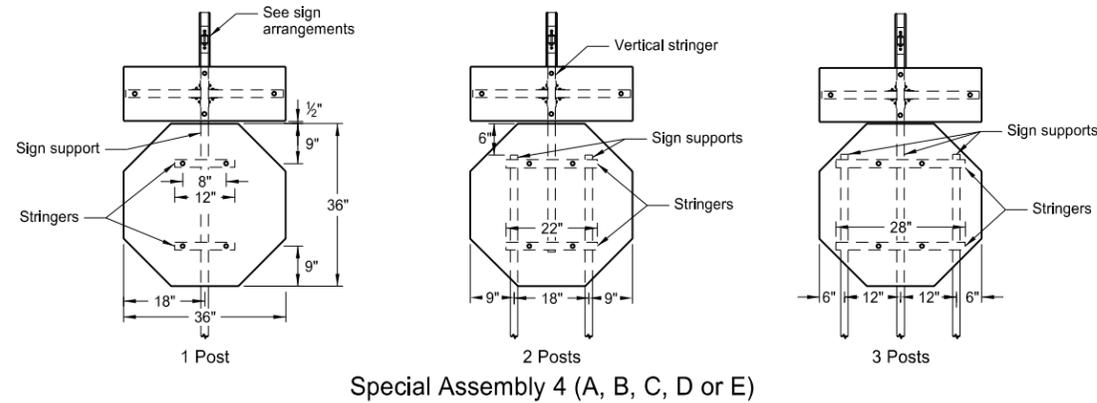


Special Assembly 1 (A, B, C, D or E)

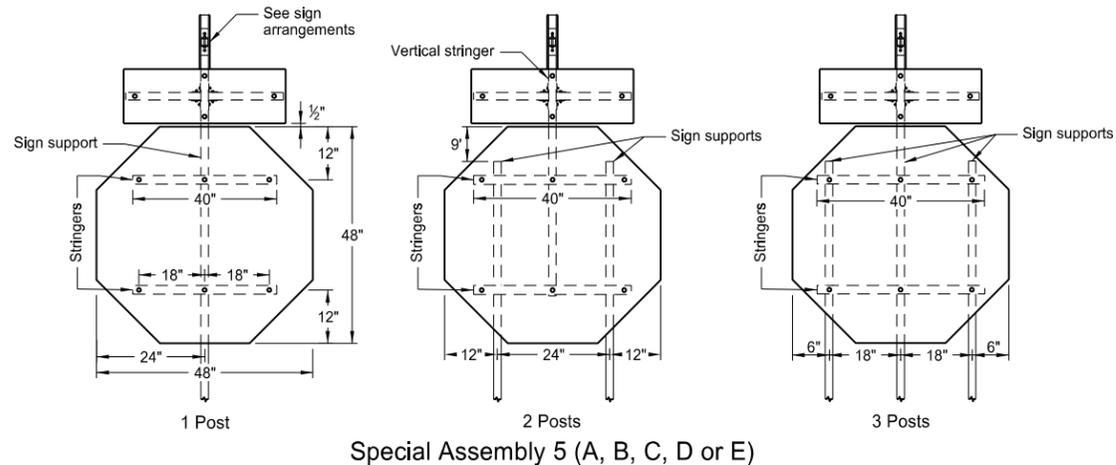


Special Assembly 2 (A, B, C, D or E)

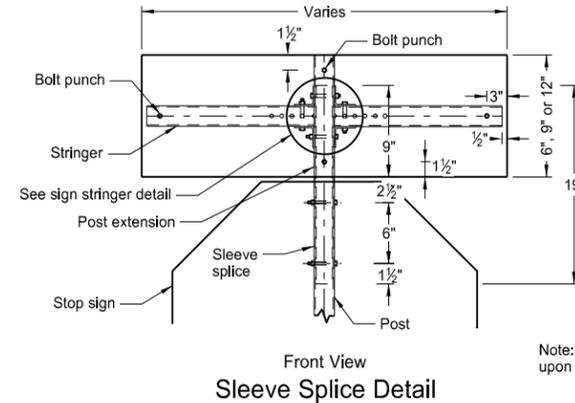
Special Assembly 3 (A, B, C, D or E)



Special Assembly 4 (A, B, C, D or E)

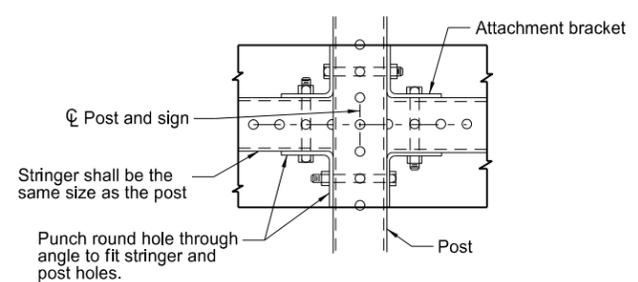


Special Assembly 5 (A, B, C, D or E)

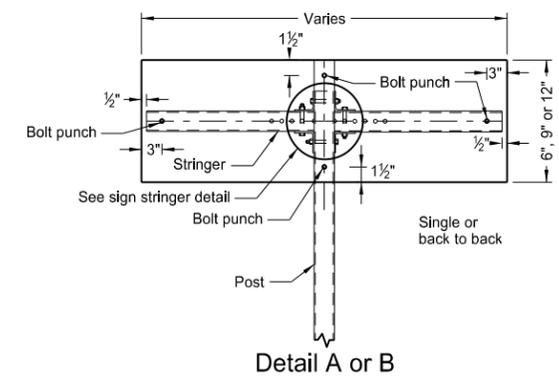


Sleeve Splice Detail

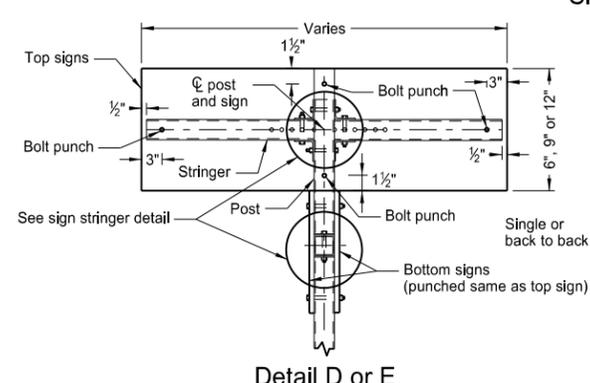
Note: The splice method may be used upon approval of the engineer.



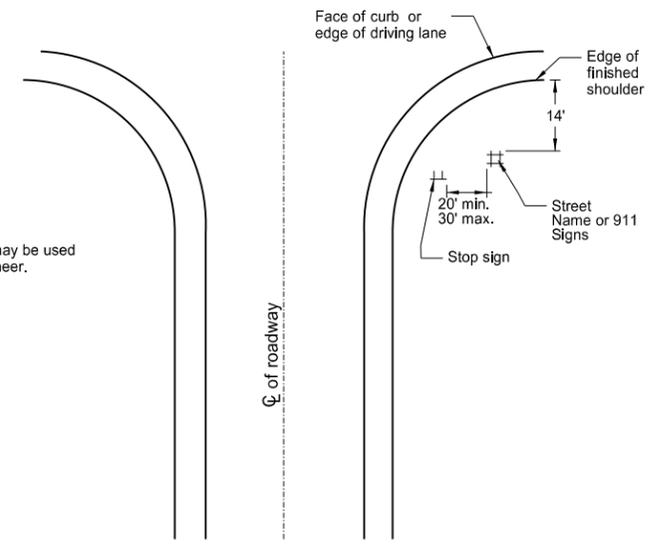
Sign Stringer Detail



Detail A or B

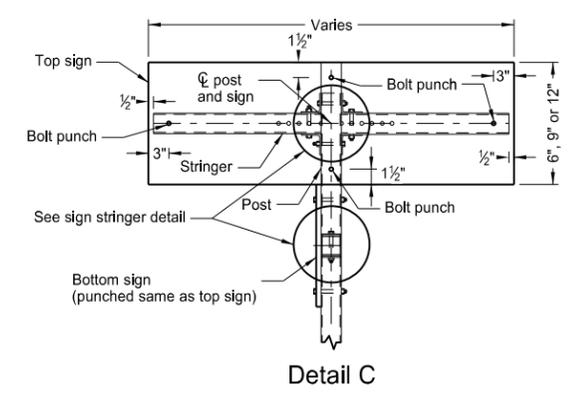


Detail D or E



Intersection Layout

Note: This layout is to be used for street name signs or 911 signs that are used with Special Assembly 1.



Sign Arrangements

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

This document was originally issued and sealed by Roger Weigel Registration Number PE-2930, on 10/3/13 and the original document is stored at the North Dakota Department of Transportation