

GRAND FORKS  
COUNTY HIGHWAY DEPARTMENT

**BIDDERS PROPOSAL**

COUNTY PROJECT NUMBER  
CP-1800(020)

31.420 MILES

BITUMINOUS SEAL COAT

COUNTY ROAD NUMBERS 3, 6, 7, 81 & 81A

DATE OF LETTING: March \_31\_, 2020

PROPOSAL OF:

GRAND FORKS COUNTY COMMISSIONERS

ADVERTISEMENT FOR BIDS

NOTICE TO BITUMINOUS SEAL COAT CONTRACTORS:

By the order of the Board of County Commissioners of Grand Forks County, North Dakota, I hereby give notice that sealed bids will be received by the undersigned at the office of the County Director of Finance & Tax up until 10:30 o'clock p.m., March 31, 2020. Bids will be publicly opened and read at 10:30 p.m. for Bituminous Seal Coat Projects CP-1800(020) for the county, as per specifications prepared by and available at the office of the County Highway Department, located at 1700 N. Columbia Road, Grand Forks. Bids shall be considered at the April 7, 2020 Commission meeting.

In compliance with Section 11-11-28 of the North Dakota Century, bids to be opened and considered must be accompanied by a bond. A bid shall be accompanied by a separate envelope containing a bidder's bond in a sum equal to five percent of the full amount of the bid, executed by the bidder's as principal and by a surety company authorized to do business in the State as a guaranty that the bidder will enter into the contract if it is awarded to him and he will furnish the necessary bond. Also to be included with the envelope containing the bid bond shall be the contractor's license.

The Board reserves the right to reject any or all bids, in whole or in part, and to waive any technicalities.

The Board reserves the right to extend the date of receiving and opening of bids for a period of not to exceed five days when unforeseeable events may warrant such extension, at the discretion of the Board.

Bids must be enclosed in a sealed envelope, with a separate envelope for the bidder's bond and contractor's license both addressed to the County Director of Finance & Tax and Marked on the outside what the bid is for. The County Director of Finance & Tax is located at 151 4<sup>th</sup> Street South and there mailing address is P.O. Box 5726, Grand Forks, ND 58206.

Dated at Grand Forks, North Dakota, this 2<sup>nd</sup> day of March, 2020.

Debbie Nelson  
County Director of Finance & Tax  
Grand Forks, North Dakota

(Publish February 7, 14, 21, 2020)

LEGAL NOTICE

## GRAND FORKS COUNTY HIGHWAY DEPARTMENT

## INSTRUCTION TO BIDDERS

I. Proposals; are requested for the construction of Bituminous Seal Coat Grand Forks County Highway Department Project Nos. CP-1800(020) in accordance with Plans, North Dakota Standard Specification Manual, North Dakota Supplemental Specification and other Contract Documents prepared by the Grand Forks County Highway Department.

A. Form: Each Proposal shall be made in a form prepared there for by the Engineer and included as one of the Contract Documents. All bids and proposals shall contain a statement showing that the bidder or contractor is duly and regularly licensed in the State of North Dakota. The number and class of the license then held by the contractor shall appear upon each bid or proposal. No contract shall be awarded to any contractor unless he is a holder of a license in the class within which the value of the project shall fall as hereinbefore provided. A contractor must be the holder of a license at least ten days prior to the date set for receiving bids to be qualified bidder. The bid shall be submitted in a sealed envelope upon which there is disclosed the following information:

1. The class of license held by the bidder;
2. The number of the bidder's license;
3. The name of the person, firm or corporation submitting the bid;
4. Date on which license was issued or renewed.
5. Certification of Insurance not less than 1,000,000.00 dollars.
6. 5% Bid Bond

A bid submitted without this information on the envelope shall not be considered and shall be returned to the bidder.

B. Modifications; Proposal shall not contain any recapitulation of the work to be done. Alternate proposals will not be considered unless called for. Oral proposals or modification will not be considered.

C. Examination of Contract Documents and Visit to Site;

Before submitting proposal, Bidder's shall carefully examine the Plans, read the Specification and the other Contract Document, shall visit the site of work, and shall fully inform themselves as to all existing conditions, and limitations, and shall include in the proposal a sum to cover the cost of items included in the Contract Documents.

D. Deliver of Proposal; Proposals shall be delivered by the time and the place stipulated in the Advertisement. It is the sole responsibility of the Bidder to see that his proposal received in proper time. Any proposal received after the scheduled closing time for receipt of proposals shall be returned to the Bidder unopened.

E. Withdrawal; Any Bidder may withdrawal his proposal, either personally or by written request, at any time prior to the scheduled closing time for receipt of proposals.

F. Opening; Proposals will be opened and publicly read aloud at the time and place set forth in the Advertisement.

G. Award or Rejection; The Contract will be awarded to the lowest and/or best qualified responsible Bidder complying with those instructions and with the Advertisement. Grand Forks County reserves the right to reject any or all proposals or to waive any informalities or technicality in any proposal in the interest of Grand Forks County. No bidder may withdraw his proposal for a period of 30 days after the date of opening thereof.

- II INTERPRETATION OF DOCUMENTS; If any person contemplating submitting a proposal is in doubt as to the true meaning of an part of the Plans, Specifications or other Contract Documents, or finds discrepancies in or omissions from the Plans or Specifications, he may submit to the Engineer a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the documents will be made only by Addendum duly issued and a copy of the Addendum will be mailed or delivered to each person receiving a set of the Contract Documents. Neither the County nor the Engineer will be responsible for any other explanation or interpretation of the Contract Documents.
- III ADDENDA; Any addenda issued during the time of bidding, or forming part of the Contract Documents loaned to the Bidder for the preparation of his proposal, shall be covered in the proposal, and shall be made a part of the Contract. Receipt of each Addendum shall be acknowledged in the proposal.
- IV BIDDERS INTERESTED IN MORE THAN ONE PROPOSAL; No person, firm or corporation shall be allowed to make, file or to be interested in more than one proposal for the same work, unless alternate proposals are called for. A person firm or corporation who has submitted a sub-proposal to a Bidder's, or who has quoted prices on materials to a Bidder's is not hereby disqualified from submitting a sub-proposal or quoting prices to other Bidder's.
- V PROPOSAL GUARANTY; Each bid must be accompanied by a bidder's bond in the amount of 5 percent of the bid, payable to Grand Forks County. All bonds shall comply with the North Dakota Century Code as amended.

All such bonds will be returned to the respective unsuccessful Bidder's within ten days after the award is made, except those the County elects to hold until the successful Bidder has executed the Contract. Thereafter all remaining bonds will be returned within ten days.

- VI CERTIFICATE FROM TAX COMMISSIONER; In accordance with Section 43-07-11.1 of the North Dakota Century Code, prior to executing the Contract, the contractor shall submit to Grand Forks County a certificate from and by the Tax Commissioner stating that the Contractor has paid all delinquent income taxes if any, owed to the State pursuant to the provisions of Chapter 57-38 of the above mention code.

Note: The envelope containing this proposal should be marked: Proposal for Grand Forks County Highway Project Nos. Bituminous Seal Coat CP-1800(020), in Grand Forks County.

\*\*\*\*\*

(Proposal of Name) \_\_\_\_\_

(Address) \_\_\_\_\_

to furnish and deliver all material and to do and perform all work, in accordance with the Standard Specification, adopted by the North Dakota Department of Transportation October 2014. Standard Drawings currently in effect, and other Contract Provisions submitted herein, of the Grand Forks County Highway Department except as specifically stated otherwise in the "Special Provisions" contained therein, for the improvement of a certain section of County Highway in Grand Forks County, State of North Dakota,

on which proposal will be accepted until 10:30 o'clock p.m., on the 31<sup>st</sup> day of March 2020, this highway being known as Grand Forks County Highway Department.

Project Nos. CP-1800(020) Said projects being County Road Numbers 3, 6, 7, 81, 81A.

\*\*\*\*\*

To the County Engineer of the Grand Forks County Highway Department Grand Forks , North Dakota

Sir:

In accordance with Advertisement and Notice to Contractors of the Grand Forks County Highway Department, inviting proposals for the improvement of the section of highway hereinbefore named, and in conformity with the plans and specification, on file in the office of the Grand Forks County Highway Department, I/We hereby certify that I am/we are the only person or persons interested in this proposal as principals; that it is made without collusion with any person, firm or corporation; that an examination has been made of the specifications and Contract Form including "Special Provisions" contained therein, also the Plans, and the site of the work, and propose to furnish all necessary machinery, equipment, tools labor and other means of construction, and to furnish all materials specified, in the manner and at the time specified and understand that the quantities of work as shown herein are approximate only and are subject to increase or decrease, and further understand that all quantities of work whether increased or decreased, are to be preformed at the following unit prices (except as provided in said specification)

The Highway Department reserves the right to reject any or all bids, in whole or in part, and to waive any technicalities.

**Bid Proposal**

Grand Forks County Highway Department

**Bid Opening: March \_31<sup>st</sup>\_, 2020**

**Projects: CP-1800(020)**

Item No.	Spec No.	Code No.	Description	Unit	Estimate Quantity	Unit Cost	Total Cost
1	103	0100	Contract Bond	L Sum	1		
2	107	0101	Railway Protection Insurance – 2 Locations	L Sum	1		
3	401	0070	Fog Seal	Gal	26,844		
4	420	0111	CRS2P Emulsified Asphalt	Gal	170,061		
5	420	0125	Cover Coat Material Class 41M	Ton	5,818		
6	702	0100	Mobilization	L Sum	1		
7	704	1000	Traffic Control Signs	Unit	4,274		
8	762	0103	Pvmt Mk Painted - Message	SF	1,034		
9	762	0460	Short Term Painted Line – Seal Jobs	LF	81,159		
10	762	1104	Pvmt Mk Painted 4 In Line	LF	414,417		
11	762	1108	Pvmt Mk Painted 8 In Line	LF	501		

<b>TOTAL</b>	
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GRAND FORKS COUNTY HIGHWAY DEPARTMENT

PROPOSAL

It is further proposed that this bidder will:

Do all "Extra Work" which may be required to complete the work contemplated at the unit prices or lump sums, to be agreed upon in writing prior to starting such extra work or if such price or sums cannot be agreed upon, to perform such work on a "Force Account" basis, as provided for in the specifications.

Obtain all required license and authority as may be required by law or foreign corporations prior to executing the contract and agrees that failure to do so shall constitute a default and grounds for forfeiture of proposal guarantee.

Begin work within ten calendar days from the date of the "Notice to Proceed" and to prosecute said work so as to complete the roadway and its appurtenances on or before **September 1, 2020**.

Comply with requirements of Title 65, North Dakota Century Code, as amended, known as the Workmen's Compensation Act.

\_\_\_\_\_  
Contractor

By \_\_\_\_\_

Title \_\_\_\_\_

Dated \_\_\_\_\_, 2019

GRAND FOR COUNTY HIGHWAY DEPARTMENT

CONTRACT

This agreement made and entered into by the Grand Forks County Highway Department, party of the first part, and

\_\_\_\_\_  
PARTY OF THE SECOND PART (hereinafter called Contractor), WITNESSETH:

1. That, for and in consideration of the payments hereinafter mention to be made by the party of the first part, the Contractor promised and agrees to furnish and deliver all the material and to do and perform all the work and labor required to be furnished and delivered, and to pay or cause to be paid as they become due, all claims for any work or labor performed including that performed repairing machinery and equipment, or renting any equipment and machinery or furnishing any, hand tools, or materials or insurance premiums or supplies used for machinery and equipment, all as done and performed in and about the improvement and construction of a certain portion of the public highway

known as Grand Forks County. Highway Department Project Numbers CP-1800(020)

in Grand Forks County, North Dakota for Bituminous Seal Coat item. In accordance with item numbers and quantities listed in the proposal and the limits of Projects as shown in the plans approved by the County Engineer of Grand Forks County Highway Dep't., a length of 31.420 miles in strict and entire conformity with provisions of this contract, and bond and proposal, and the plans and specifications approved by the County Engineer, copies of which are hereto attached, and which said plans and specifications and proposal and bond are hereby made a part of this agreement. As fully and to the same effect as if the same had been set forth in the body of this agreement.

2. The party of the first part agrees and promised to pay to the Contractor for said work, when completed and accepted in accordance with the provisions of this contract, the price set forth in the said proposal, amounting approximately to

\_\_\_\_\_, payment to be made as provided in said specification upon presentation of the proper certification of the County Engineer of the Grand Forks County Highway Department, or his representatives, and under to terms of this contract.

3. The said work shall be done in accordance with the terms of this agreement and the laws of the State of North Dakota under direct supervision and to the entire satisfaction of the Grand Forks County Highway Department.

4. The decision of said County Engineer upon any question connected with the execution of this agreement or any failure or delay in the prosecution of the work by the said Contractor shall be final and conclusive.

5. The Contractor shall begin construction work when so ordered by the Grand Forks County Highway Department and shall maintain at all times thereon a maximum and effective force.

6. The Said work shall be completed by September 1, 2020.

In Witness Whereof, the parties to this contract have hereunto set their hand and seals this \_\_\_\_\_ day of \_\_\_\_\_, 2020.

GRAND FORKS COUNTY STATE OF NORTH DAKOTA

\_\_\_\_\_  
Chairman of the Board of Grand Forks County  
Commissioner, Party of the First Part

WITNESS TO CONTRACTOR'S SIGNATURE

\_\_\_\_\_

\_\_\_\_\_  
Grand Forks County Director of Finance & Tax

Contractor \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

Party of the Second Part



# PROPOSED PROGRESS CHART

North Dakota Department of Transportation, Construction Services  
SFN 7721 (Rev. 12-2011)

Bid Opening Date <b>March 31, 2020</b>
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**This Block To Be Completed by Contractor**

Project No.
County
Contractor
Proposed Starting Date

**Department Use Only:**

Completion Date Contract <u>09-01-2020</u> with <u>N/A</u> guaranteed working day counted from <u>N/A</u> or from the actual date on which on-site work is started, whichever is earlier.	
Working Day Contract <u>N/A</u> working days counted from <u>N/A</u> or from the actual date on which on-site work is started, whichever is earlier.	
Contract Amount \$	Engineer

Prime Contractor       DBE Subcontractor

TYPE OF OPERATION	YEAR	PROPOSED WORK SCHEDULE																					
		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.										
	2019																						
	2020																						
<b>Contractor:</b> Enter estimate % contract completion to date for end of each month	2019																						
	2020																						
	2021																						
<b>Department Use Only:</b> Actual % completion to date	2019																						
	2020																						
	2021																						

Contractor to submit Proposed Progress Chart within 10 days after opening of bids to: Grand Forks County Highway Department, P.O. Box 5682, Grand Forks, ND 58206

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

PROJECTS	MILES-GROSS	MILES-NET
CP-1800(020)	31.482	31.420
TOTAL	31.482	31.420






**PLANS**  
 For The Proposed Improvement  
**GRAND FORKS COUNTY HIGHWAY**  
**CHIP SEAL COAT**  
**COUNTY PROJECT CP-1800(020)**

Project consists of 31.420 miles of Chip Seal Coat on various bituminous surfaced County Routes #3, #6, #7, #81 & #81A.

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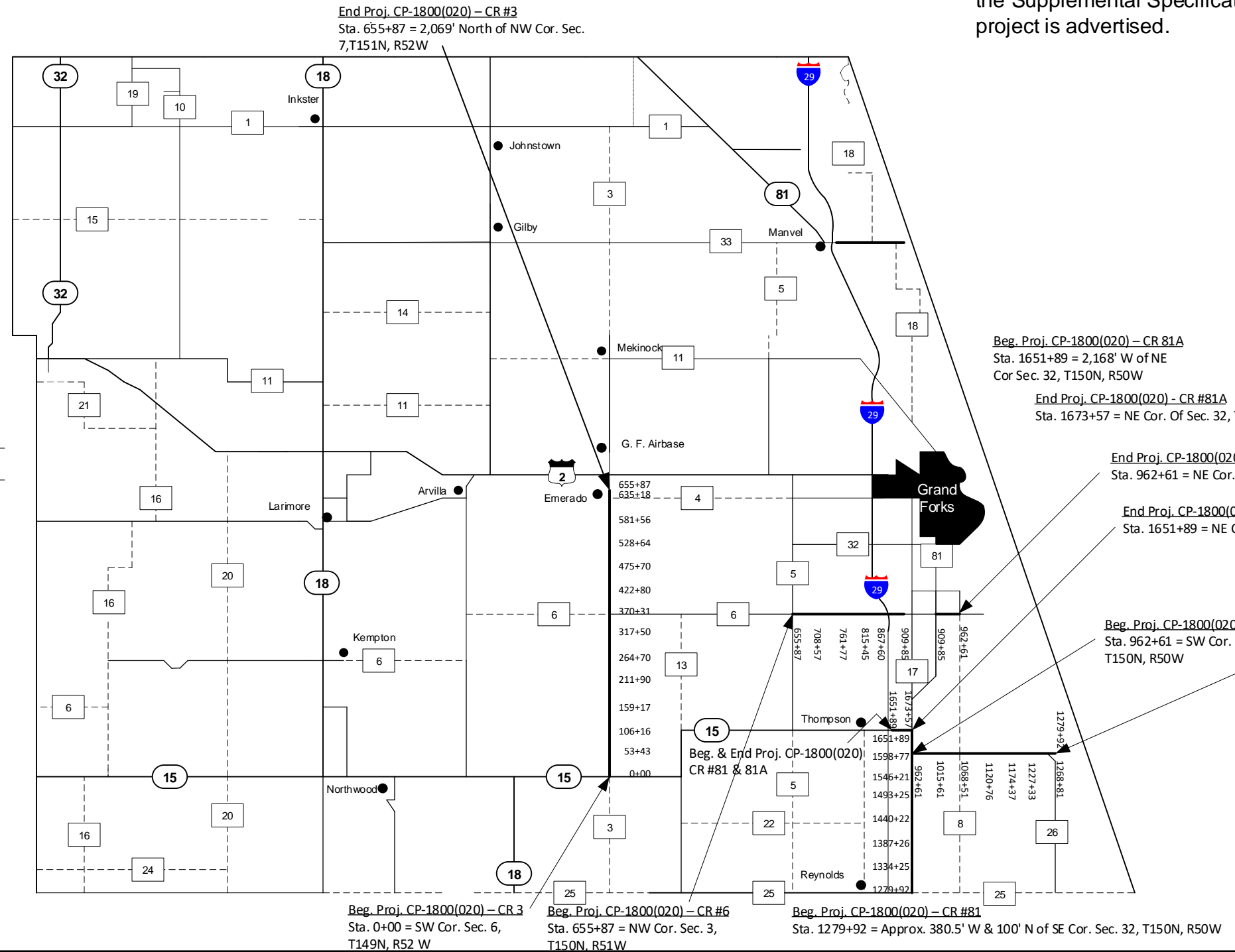
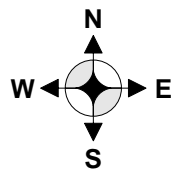
**GOVERNING SPECIFICATIONS**

Standard Specifications for Road and Bridge Construction  
 2014 Standard Specifications adopted by the NDDOT and  
 the Supplemental Specifications effective on the date the  
 project is advertised.

-  U.S. Highway
-  State Highway
-  County Highway
-  County Gravel
-  Seal Coat Projects

Surveyed & Designed 10-20-2019  
 PS & E Corrections 03-02-2020

Current Traffic Count 2020  
 CR #3 800 ADT  
 CR #6 625 ADT  
 CR #7 1,385 ADT  
 CR #81 1,840 ADT  
 CR #81A 2,120 ADT



POC: Scott Clayton  
 P.O. Box 5682  
 Grand Forks, ND 58206  
 (701) 780-8248

Beg. Proj. CP-1800(020) - CR 81A  
 Sta. 1651+89 = 2,168' W of NE  
 Cor Sec. 32, T150N, R50W

End Proj. CP-1800(020) - CR #81A  
 Sta. 1673+57 = NE Cor. Of Sec. 32, T150N, R50W

End Proj. CP-1800(020) - CR #6  
 Sta. 962+61 = NE Cor. Sec. 3, T150N, R50W

End Proj. CP-1800(020) - CR #81  
 Sta. 1651+89 = NE Cor. Sec. 32, T150N, R50W

Beg. Proj. CP-1800(020) - CR #7  
 Sta. 962+61 = SW Cor. Sec. 33,  
 T150N, R50W

End Proj. CP-1800(020) - CR #7  
 Sta. 1279+92 = Sta. 47+67 on Bridge Proj.  
 STM-SC-BRC-1820(052), Sec. 4, T150N, R49W

Beg. Proj. CP-1800(020) - CR 3  
 Sta. 0+00 = SW Cor. Sec. 6,  
 T149N, R52 W

Beg. Proj. CP-1800(020) - CR #6  
 Sta. 655+87 = NW Cor. Sec. 3,  
 T150N, R51W

Beg. Proj. CP-1800(020) - CR #81  
 Sta. 1279+92 = Approx. 380.5' W & 100' N of SE Cor. Sec. 32, T150N, R50W

This document was originally  
 issued and sealed by  
 Nicholas J. West  
 Registration Number PE-5961  
 On 03-05-2020  
 Document is stored at the  
 Grand Forks County Highway  
 Department

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7.)	Typical Section & Basis of Estimate CR #6, #7, 81A
8.)	Typical Section & Basis of Estimate CR #3
9.)	Typical Section & Basis of Estimate CR #6
10.)	Typical Section & Basis of Estimate CR #81
11.)	Construction Sign Detail CR #3, #6, #7
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16.)	Pavement Marking Installation Detail CR #3, #6, #7, #81A

	List of Standard Drawing
D-704-3	Lane Markers for Seal Jobs Only
D-704-7	Breakaway Systems for Construction Zone Signs
D-704-8	Breakaway Systems for Construction Zone Signs
D-704-10	Construction Sign Detail – Regulatory Signs
D-704-11	Construction Sign Detail – Warning Signs
D-704-11A	Construction Sign Detail – Warning Signs
D-704-15	Road Closure Layout
D-704-20	Terminal and Seal Coat Sign Layout
D-704-22	Construction Truck and Temporary Detour Layout
D-704-50	Portable Sign Support Assembly
D-762-1	Pavement Marking Message Details
D-762-4	Pavement Marking
D-762-5	Pavement Marking for Standard 90 Degree Flared Intersection

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NOTES

107 RAILWAY PROTECTION INSURANCE  
 Project CP-1800(020) crosses BNSF Railway at Sta. 635+18 DOT #086767C, Sta. 814+59 DOT #086743N.  
 Contact Person: Nels Christianson 701-281-0326 R/W (BNSF)  
 Camille Barbosa 817-230-2634 Insurance

401 FOG SEAL APPLICATION: CSS-1H will be required. Broom roadway before the Fog Seal application. Apply Fog Seal at a rate shown in the Basis of Estimate, or as directed by the Engineer. Dilute the Fog Seal oil 50% (water) and 50% (CSS-1H) or as directed by the Engineer. Dilution at the supplier will be required. Begin this work within 48 hours of the mainline completion.

420 COVER COAT MATERIAL CL 41: Contractor is allowed to use Class #41 or 41M for cover coat material.

420 SEAL COAT: Initial brooming will be during the cool period of the early morning of the next day seal application. Traffic control will be needed during the brooming operation.

704 TRAFFIC CONTROL FOR SEAL COATS: Traffic control for the seal coat shall consist of a temporary road closure, flagging, and a pilot car. Traffic Control Devices shall comply with the following Standard Drawings:

- 1.) Standard D-704-15 layout A: For construction signing just beyond the daily work areas during seal coat operation. Intermediate flagging station will require signs W20-7a-48 only.
- 2.) Standard D-704-20 layout H: For construction signing during seal coat operations.
- 3.) Standard D-704-22, layout K and L: For trucks hauling material
- 4.) Standard D-704-7, 8, 9, 10, 11, and 14 are applicable.
- 5.) Standard D-704-3, Lane Markers for Seal Jobs (Spotting Tabs)

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 require to accommodate the Contractor's operation shall be the Contractor's responsibility. The Contractor is allowed to use portable signs.

762 RAISED PAVEMENT MARKERS: RPMs shall be installed every 200 feet along the centerline and at the beginning and end of no passing zones.

762 PAVEMENT MARKING PAINTED MESSAGE: The contractor shall install pavement marking on the both side of RR Tracks at Sta. 635+18, 814+59.

762 PAVEMENT MARKING EDGE LINE: A 4 inch white edge line has been added to quantity to be used throughout the length of the project. Edge line shall continue through private drives and field drives, and break for intersections.

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Notes

NOTES

State	Project No.	Sheet No.
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762 PAVEMENT MARKING: The quantity for Permanent Pavement Marking and Short Term Painted Line – Seal Coat are based on one application each. Pavement marking paint for Permanent Pavement Marking and Short Term Painted Line – Seal Coat shall be commercially available traffic marking paint. Glass beads for permanent pavement marking shall meet the requirement of Standard Specification 880.02 and be tested approved prior to use on the project.

County Road #3

Station	to	Station	Rt/Lt	Length	Overlap
0+54		10+81	Lt.	1,027'	
182+32		189+36	Rt.	704'	
188+55		195+72	Lt.	717'	81'
199+02		210+96	Rt.	1,194'	
211+36		229+09	Lt.	1,773'	
247+59		257+74	Lt.	1,015'	
318+56		332+11	Rt.	1,355'	
335+34		346+92	Lt.	1,158'	
363+51		370+01	Rt.	650'	
370+66		377+16	Lt.	650'	
616+37		635+09	Rt.	1,872'	1,872'
616+37		635+09	Lt.	1,872'	
636+56		655+87	Rt.	1,931'	1,931'
636+56		666+87	Lt.	1,931'	

County Road #6

656+34		662+92	Lt.	685'	
807+96		814+52	Rt.	656'	
813+80		814+52	Lt.	72'	72'
814+98		816+14	Rt.	116'	
814+98		816+14	Lt.	116'	116'
816+72		821+78	Lt.	506'	
869+08		884+88	Rt.	1,580'	1,265'
872+23		890+05	Lt.	1,782'	
910+30		913+25	Rt.	295'	295'
910+30		919+60	Lt.	930'	
954+56		962+36	Rt.	780'	
959+40		962+36	Lt.	296'	296'

County Road #7

Station	to	Station	Rt/Lt	Length	Overlap
963+21		969+71	Lt.	650'	
1061+76		1068+26	Rt.	650'	
1068+76		1075+26	Lt.	650'	
1201+33		1223+02	Rt.	2,169'	2,169'
1201+33		1223+02	Lt.	2,169'	
1255+91		1266+42	Rt.	1,051'	1,051'
1255+91		1266+42	Lt.	1,051'	
1267+13		1274+92	Rt.	779'	779'
1267+13		1274+92	Lt.	779'	

County Road #81

1280+82		1290+55	Rt.	973'	973'
1280+82		1299+88	Lt.	1,906'	
1591+92		1598+43	Rt.	651'	
1599+12		1605+62	Lt.	650'	
1645+16		1651+66	Rt.	650'	

County Road #81A

1651+89		1657+15	Lt.	526'	
1665+12		1672+91	Rt.	779'	

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Notes

State	Project No.	Sheet No.
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Estimate of Quantities CP-1800(020)

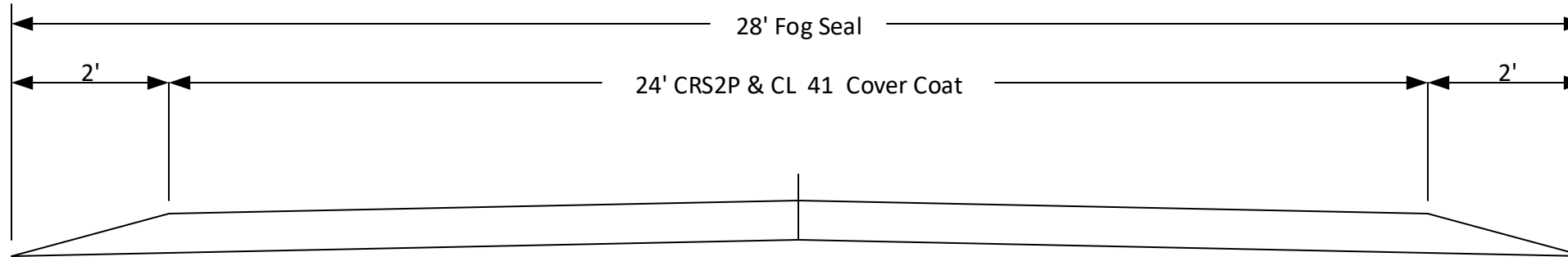
Spec No	Code No	Description	Unit	CR #3	CR #6	CR #7	CR #81	CR #81A	Project CP-1800(020)
103	0100	Contract Bond	L Sum	.39	.19	.19	.22	.01	1
107	0101	Railway Protection Insurance – 2 Locations	L Sum	.50	.50				1
401	0070	Fog Seal	Gal	10,337	5,092	5,205	5,849	361	26,844
420	0111	CRS2P Emulsified Asphalt	Gal	66,636	31,466	31,647	38,135	2,197	170,061
420	0125	Cover Coat Material CI 41	Ton	2,280	1,076	1,083	1,304	75	5,818
702	0100	Mobilization	L Sum	.39	.19	.19	.22	.01	1
704	1000	Traffic Control Signs	Unit	1,528	876	680	850	340	4,274
762	0103	Pvmt Mk Painted - Message	SF	341	525	76	16	76	1,034
762	0460	Short Term Painted Line – Seal Jobs	LF	33,275	14,945	16,756	14,336	1,847	81,159
762	1104	Pvmt Mk Painted 4 In Line	LF	164,449	76,293	79,218	88,280	6,177	414,417
762	1108	Pvmt Mk Painted 8 In Line	LF		256		245		501

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Estimate  
of  
Quantities

TYPICAL SECTION & BASIS OF ESTIMATE

State	Project No.	Sheet No.
ND	CP-1800(020)	6



Sta. 0+00 to Sta. 633+50 = 63,350' CR #3  
 Sta. 2770+26 to Sta. 3128+27 = 35,801' CR #81

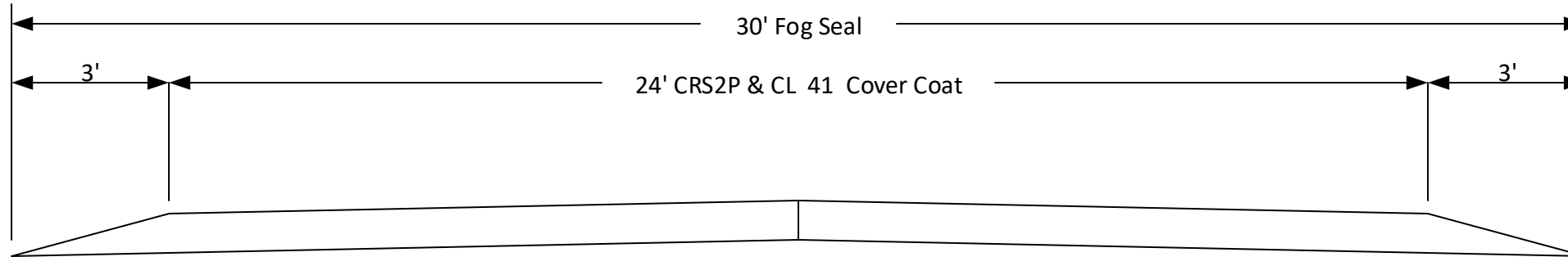
Description	Basis of Estimate		
	Unit	Width	Unit/Mile
CRS2P Emulsified Asphalt @ 0.38 gal/sy	Gal	24'	5,350
Cover Coat Material Cl. 41 @ 26 lbs/sy	Ton	24'	183
CSS-1H Emulifed Aspahalt @ 0.05 gal/sy	Gal	28'	821

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Typical Section  
 &  
 Basis Estimate

TYPICAL SECTION & BASIS OF ESTIMATE

State	Project No.	Sheet No.
ND	CP-1800(020)	7



Sta. 1708+56 to Sta. 1933+56 =	22,500'	CR #6
Sta. 1936+58 to Sta. 1962+54 =	2,596'	CR #6
Sta. 2015+60 to Sta. 2327+73 =	31,213'	CR #7
Sta. 3128+27 to Sta. 3146+59 =	1,832'	CR #81A

Basis of Estimate

Description	Unit	Width	Unit/Mile
CRS2P Emulsified Asphalt @ 0.38 gal/sy	Gal	24'	5,350
Cover Coat Material Cl. 41 @ 26 lbs/sy	Ton	24'	183
CSS-1H Emulsified Asphalt @ 0.05 gal/sy	Gal.	30'	880

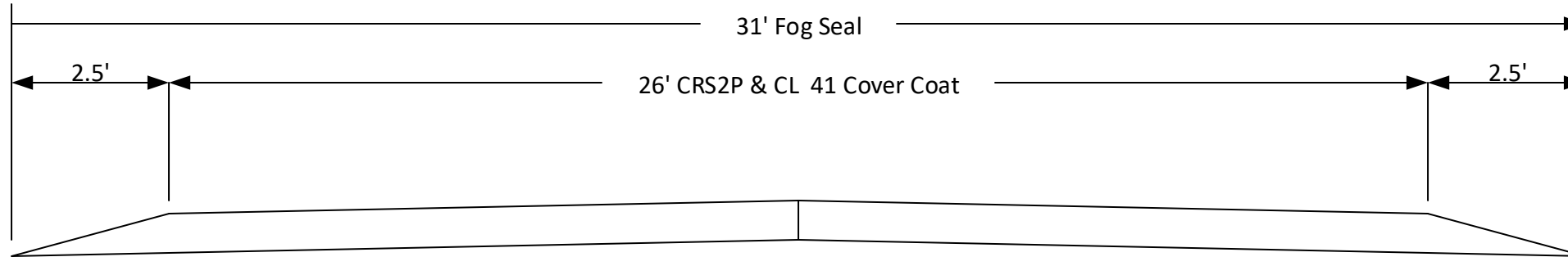
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Typical Section  
 &  
 Basis Estimate



TYPICAL SECTION & BASIS OF ESTIMATE

State	Project No.	Sheet No.
ND	CP-1800(020)	8



Sta. 633+50 to Sta. 653=78 = 2,208' CR #3

Basis of Estimate

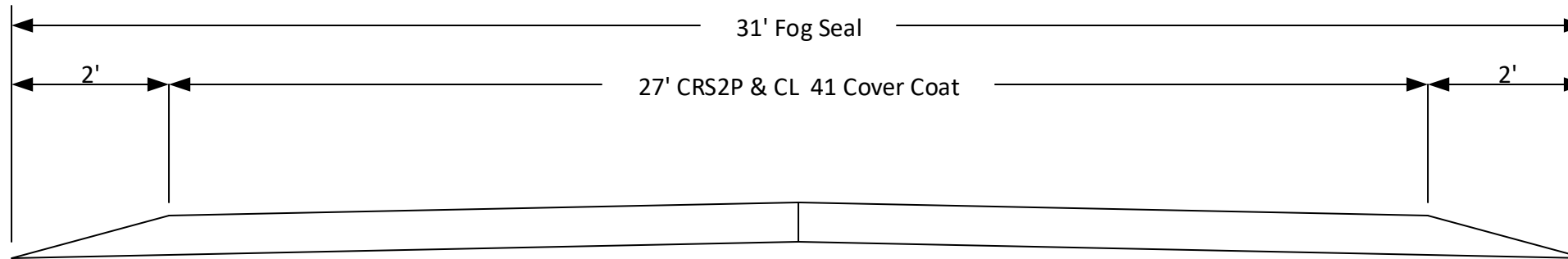
Description	Unit	Width	Unit/Mile
CRS2P Emulsified Asphalt @ 0.38 gal/sy	Gal	26'	5,796
Cover Coat Material Cl. 41 @ 26 lbs/sy	Ton	26'	198
CSS-1H Emulsified Asphalt @ 0.05 gal/sy	Gal.	31'	909

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Typical Section  
 &  
 Basis Estimate

TYPICAL SECTION & BASIS OF ESTIMATE

State	Project No.	Sheet No.
ND	CP-1800(020)	9



Sta. 1962+54 to Sta. 2015+60 = 5,306' CR #6

Basis of Estimate

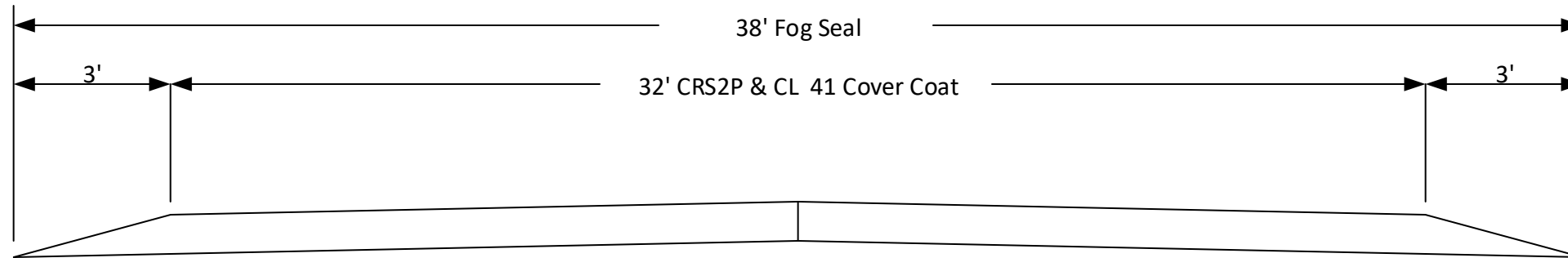
Description	Unit	Width	Unit/Mile
CRS2P Emulsified Asphalt @ 0.38 gal/sy	Gal	27'	6,019
Cover Coat Material Cl. 41 @ 26 lbs/sy	Ton	27'	206
CSS-1H Emulsified Asphalt @ 0.05 gal/sy	Gal.	31'	909

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Typical Section  
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 Basis Estimate

TYPICAL SECTION & BASIS OF ESTIMATE

State	Project No.	Sheet No.
ND	CP-1800(020)	10



Sta. 2757+30 to Sta. 2770+26 = 1,296' CR #81

Basis of Estimate

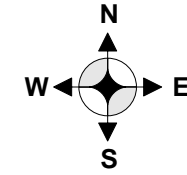
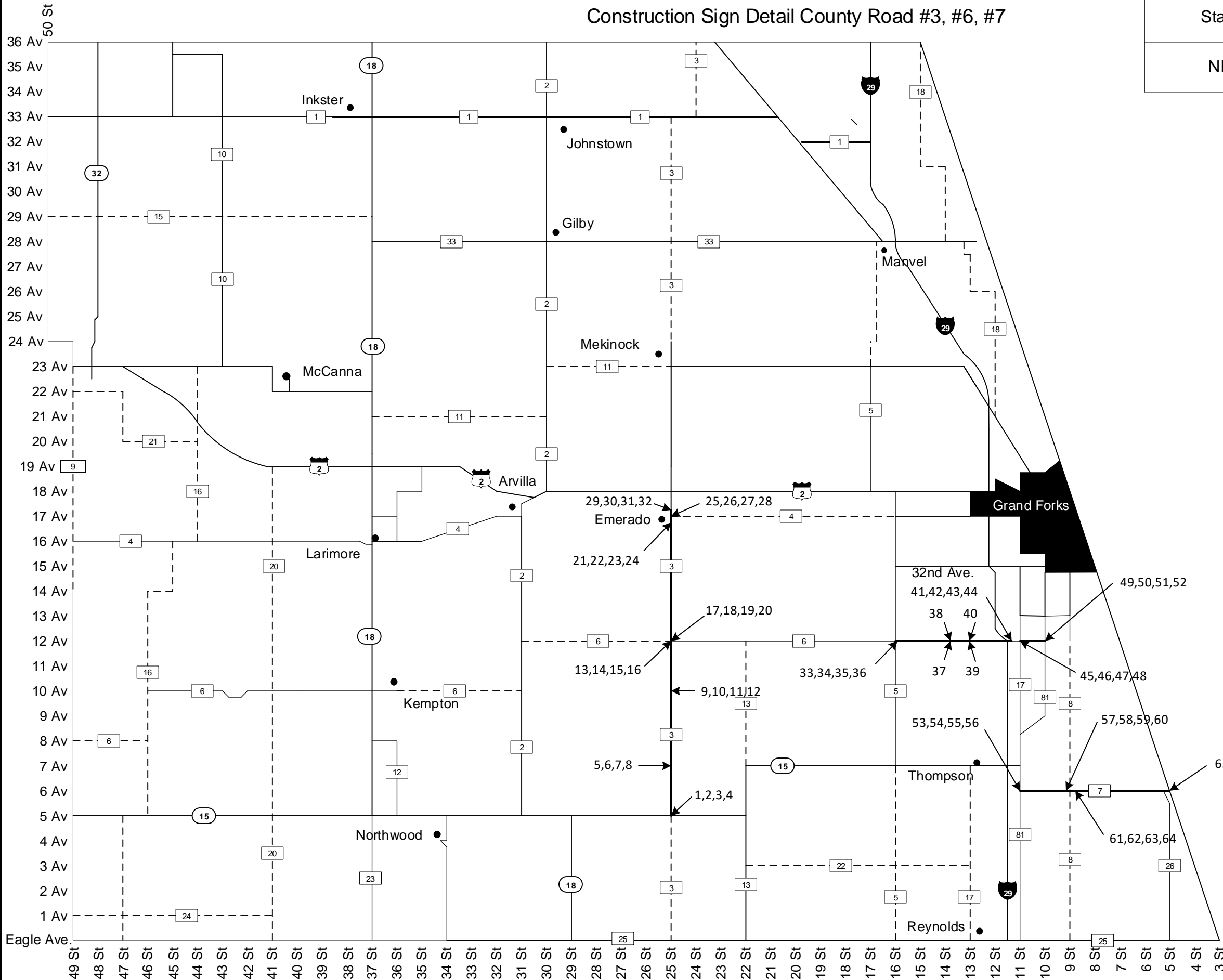
Description	Unit	Width	Unit/Mile
CRS2P Emulsified Asphalt @ 0.38 gal/sy	Gal	32'	7,133
Cover Coat Material Cl. 41 @ 26 lbs/sy	Ton	32'	244
CSS-1H Emulsified Asphalt @ 0.05 gal/sy	Gal.	38'	1,115

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Typical Section  
 &  
 Basis Estimate

# Construction Sign Detail County Road #3, #6, #7

State	Project No.	Sheet No.
ND	CP-1800(020)	11

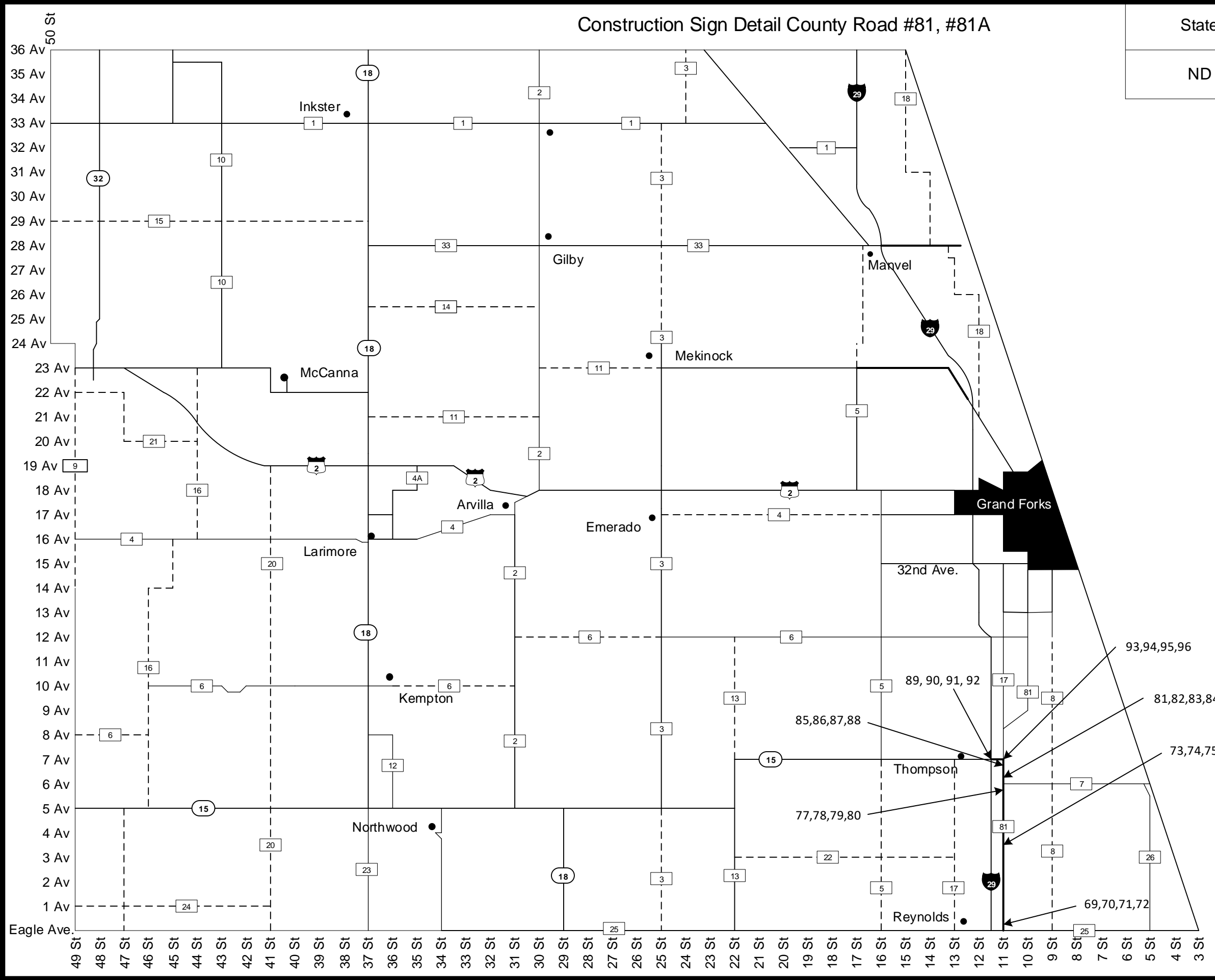
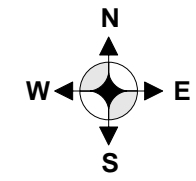


**Construction Sign Detail**

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# Construction Sign Detail County Road #81, #81A

State	Project No.	Sheet No.
ND	CP-1800(020)	12



**Construction Sign Detail**

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Construction Sign Detail  
County Road #3

State	Project No.	Sheet No.
ND	CP-1800(020)	13

**County Road #3**

1. No Center Stripe (W8-12-48)
2. Do Not Pass (R4-1-48)
3. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
4. Fresh Oil Loose Rock (W22-8-48), Next 12.4 Miles (W20-52-54)
5. No Center Stripe (W8-12-48)
6. Do Not Pass (R4-1-48)
7. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
8. Fresh Oil Loose Rock (W22-8-48), Next 2.0 Miles (W20-52-54)
9. No Center Stripe (W8-12-48)
10. Do Not Pass (R4-1-48)
11. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
12. Fresh Oil Loose Rock (W22-8-48), Next 7.4 Miles (W20-52-54)
13. No Center Stripe (W8-12-48)
14. Do Not Pass (R4-1-48)
15. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
16. Fresh Oil Loose Rock (W22-8-48), Next 7.0 Miles (W20-52-54)
17. No Center Stripe (W8-12-48)
18. Do Not Pass (R4-1-48)
19. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
20. Fresh Oil Loose Rock (W22-8-48), Next 5.4 Miles (W20-52-54)
21. No Center Stripe (W8-12-48)
22. Do Not Pass (R4-1-48)
23. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
24. Fresh Oil Loose Rock (W22-8-48), Next 12.0 Miles (W20-52-54)
25. No Center Stripe (W8-12-48)
26. Do Not Pass (R4-1-48)
27. Speed Limit 25 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
28. Fresh Oil Loose Rock (W22-8-48), Next 0.4 Miles (W20-52-54)
29. No Center Stripe (W8-12-48)
30. Do Not Pass (R4-1-48)
31. Speed Limit 25 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
32. Fresh Oil Loose Rock (W22-8-48), Next 12.4 Miles (W20-52-54)

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Construction Sign  
Detail

Construction Sign Detail  
 County Road #6, #7, #81, #81A

State	Project No.	Sheet No.
ND	CP-1800(020)	14

**County Road #6**

- 33. No Center Line (W8-12-48)
- 34. Do Not Pass (R4-1-48)
- 35. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 36. Fresh Oil Loose Rock (W22-8-48), Next 4.8 Miles (W20-52-54)
- 37. Speed Limit 30 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 38. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 39. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 40. Speed Limit 30 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 41. No Center Stripe (W8-12-48)
- 42. Do Not Pass (R4-1-48)
- 43. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 44. Fresh Oil Loose Rock (W22-8-48), Next 4.8 Miles (W20-52-54)
- 45. No Center Stripe (W8-12-48)
- 46. Do Not Pass (R4-1-48)
- 47. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 48. Fresh Oil Loose Rock (W22-8-48), Next 1.0 Miles (W20-52-54)
- 49. No Center Stripe (W8-12-48)
- 50. Do Not Pass (R4-1-48)
- 51. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 52. Fresh Oil Loose Rock (W22-8-48), Next 1.0 Miles (W20-52-54)

**County Road #7**

- 53. No Center Stripe (W8-12-48)
- 54. Do Not Pass (R4-1-48)
- 55. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 56. Fresh Oil Loose Rock (W22-8-48), Next 5.9 Miles (W20-52-54)
- 57. No Center Stripe (W8-12-48)
- 58. Do Not Pass (R4-1-48)
- 59. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 60. Fresh Oil Loose Rock (W22-8-48), Next 2.0 Miles (W20-52-54)
- 61. No Center Stripe (W8-12-48)
- 62. Do Not Pass (R4-1-48)
- 63. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 64. Fresh Oil Loose Rock (W22-8-48), Next 3.9 Miles (W20-52-54)
- 65. No Center Stripe (W8-12-48)
- 66. Do Not Pass (R4-1-48)
- 67. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 68. Fresh Oil Loose Rock (W22-8-48), Next 5.9 Miles (W20-52-54)

**County Road #81**

- 69. No Center Stripe (W8-12-48)
- 70. Do Not Pass (R4-1-48)
- 71. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 72. Fresh Oil Loose Rock (W22-8-48), Next 7.0 Miles (W20-52-54)
- 73. No Center Stripe (W8-12-48)
- 74. Do Not Pass (R4-1-48)
- 75. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 76. Fresh Oil Loose Rock (W22-8-48), Next 3.0 Miles (W20-52-54)
- 77. No Center Stripe (W8-12-48)
- 78. Do Not Pass (R4-1-48)
- 79. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 80. Fresh Oil Loose Rock (W22-8-48), Next 6.0 Miles (W20-52-54)
- 81. No Center Stripe (W8-12-48)
- 82. Do Not Pass (R4-1-48)
- 83. Speed Limit 40 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 84. Fresh Oil Loose Rock (W22-8-48), Next 1.0 Miles (W20-52-54)
- 85. No Center Stripe (W8-12-48)
- 86. Do Not Pass (R4-1-48)
- 87. Speed Limit 45 MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 88. Fresh Oil Loose Rock (W22-8-48), Next 7.0 Miles (W20-52-54)

**County Road #81A**

- 89. No Center Stripe (W8-12-48)
- 90. Do Not Pass (R4-1-48)
- 91. Speed Limit \_\_\_ MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 92. Fresh Oil Loose Rock (W22-8-48), Next 0.3 Miles (W20-52-54)
- 93. No Center Stripe (W8-12-48)
- 94. Do Not Pass (R4-1-48)
- 95. Speed Limit \_\_\_ MPH (R2-1-48), Minimum Fee \$80 (R2-1a-24)
- 96. Fresh Oil Loose Rock (W22-8-48), Next 0.3 Miles (W20-52-54)

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Construction Sign  
 Detail

PROJECT TRAFFIC CONTROL DEVICES LIST PROJECT COUNTY ROAD 3, 6, 7, 81, 81A						
Sign Number	Sign Size	Description	Quantity Required	Unit Per Sign	Units Sub Total	
G20-1a-60	60" x 24"	Road Work __ Miles		34	0	
G20-1b-60	60" x 24"	Work In Progress/No Work In Progress		28	0	
G20-2a-48	48" x 24"	End Road Work		26	0	
<b>G20-4-36</b>	<b>36" x 18"</b>	<b>Pilot Car Follow Me</b>	<b>1</b>	<b>18</b>	<b>18</b>	
G20-50a-72	72" x 36"	Road Work Next __ Miles Rt & Lt Arrow		37	0	
G20-52a-72	72" x 24"	Road Work __ Miles Rt or Lt Arrow		30	0	
G20-55-96	96" x 48"	Work Zone Speed Limit Enforced		59	0	
R1-1-30	30" x 30"	Stop		17	0	
R1-1-48	48" x 48"	Stop		32	0	
<b>R1-1a-18</b>	<b>18" x 18"</b>	<b>Stop and Slow Paddle (back to back)</b>	<b>2</b>	<b>5</b>	<b>10</b>	
<b>R2-1-48</b>	<b>48" x 60"</b>	<b>Speed Limit</b>	<b>27</b>	<b>39</b>	<b>1,053</b>	
<b>R2-1a-24</b>	<b>24" x 18"</b>	<b>Minimum Fee \$80 (mounted on speed limit post)</b>	<b>27</b>	<b>10</b>	<b>270</b>	
<b>R4-1-48</b>	<b>48" x 60"</b>	<b>Do Not Pass</b>	<b>23</b>	<b>39</b>	<b>897</b>	
<b>W3-4-48</b>	<b>48" x 48"</b>	<b>Be Prepared To Stop</b>	<b>2</b>	<b>35</b>	<b>70</b>	
W3-5-48	48" x 48"	Speed Reduction Ahead		35	0	
W8-1-48	48" x 48"	Bump		35	0	
W8-11-48	48" x 48"	Uneven Lanes		35	0	
<b>W8-12-48</b>	<b>48" x 48"</b>	<b>No Center Stripe</b>	<b>23</b>	<b>35</b>	<b>805</b>	
W8-53-48	48" x 48"	Trucks Entering Highway		35	0	
W8-54-48	48" x 48"	Trucks Entering Ahead or __ Ft.		35	0	
W8-55-48	48" x 48"	Trucks Crossing Ahead or Ft.		35	0	
W14-3-64	48" x 36"	No Passing Zone		30	0	
<b>W20-7a-48</b>	<b>48" x 48"</b>	<b>Flagging Symbol</b>	<b>2</b>	<b>35</b>	<b>70</b>	
W20-7b-48	48" x 48"	Be Prepared to Stop		35	0	
W20-7k-48	24" x 18"	__ Ft.		10	0	
W20-51-48	48" x 48"	Equipment Working		35	0	
<b>W20-52-54</b>	<b>54" x 12"</b>	<b>Next __ Miles</b>	<b>23</b>	<b>10</b>	<b>276</b>	
W21-2-48	48" x 48"	Fresh Oil		35	0	
<b>W22-8-48</b>	<b>48" x 48"</b>	<b>Fresh Oil Loose Rock</b>	<b>23</b>	<b>34</b>	<b>805</b>	
		<b>TOTAL UNITS</b>			<b>4,274</b>	

Pay Item Description	Unit	Spec & Code	Quantity
Traffic Control Signs	Unit	704-1000	
Type III Barricades	Each	704-1050	
Type II Barricades	Each	704-1051	
Type I Barricades	Each	704-1052	
Delineator Drums	Each	704-1060	
Traffic Cones	Each	704-1065	
Tubular Marker	Each	704-1067	
Flexible Delineator	Each	704-1072	
Obliteration of Pavement Marking	L.F.	704-0104	
Raised Pavement Markers	Each	762-0200	<b>1,003</b>

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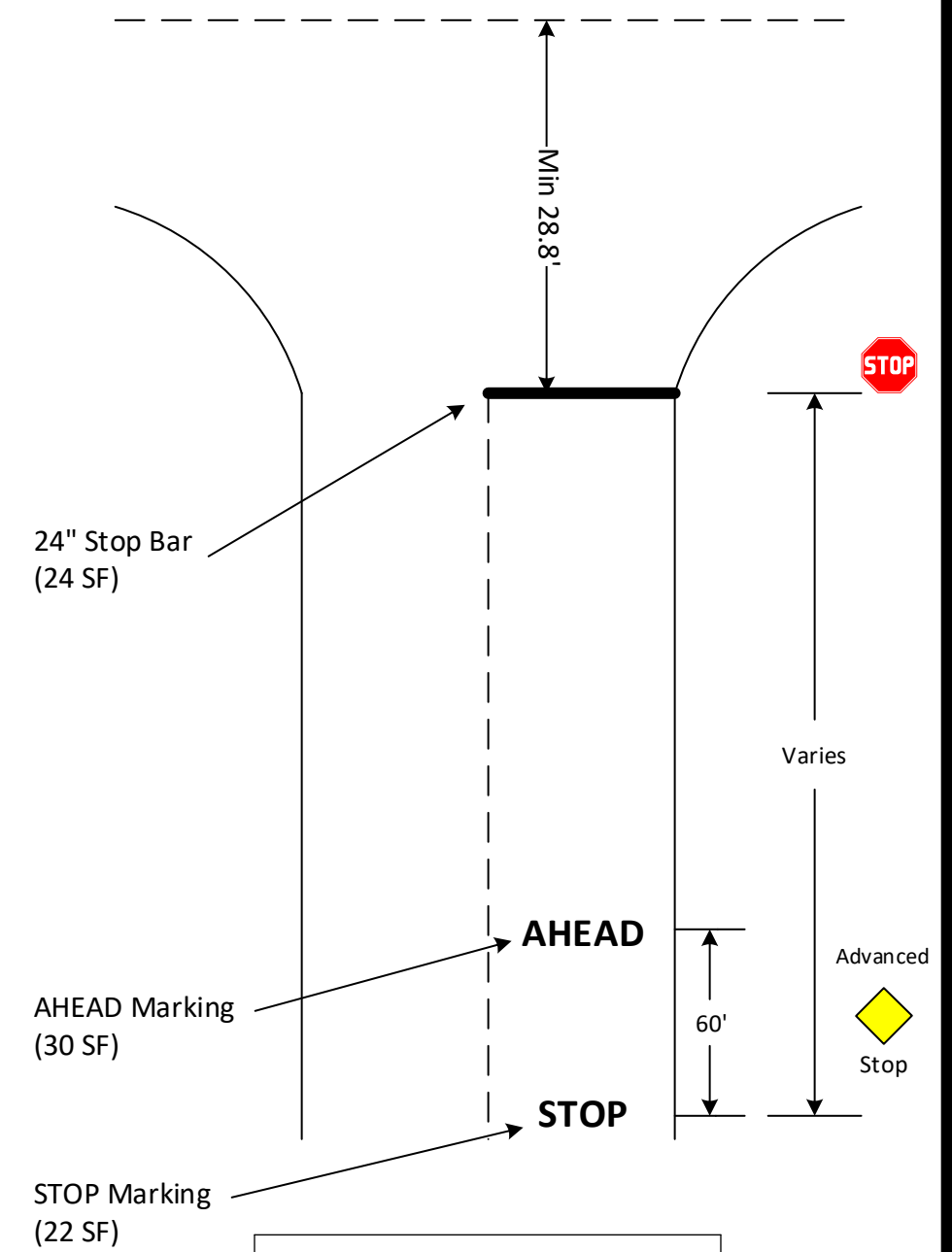
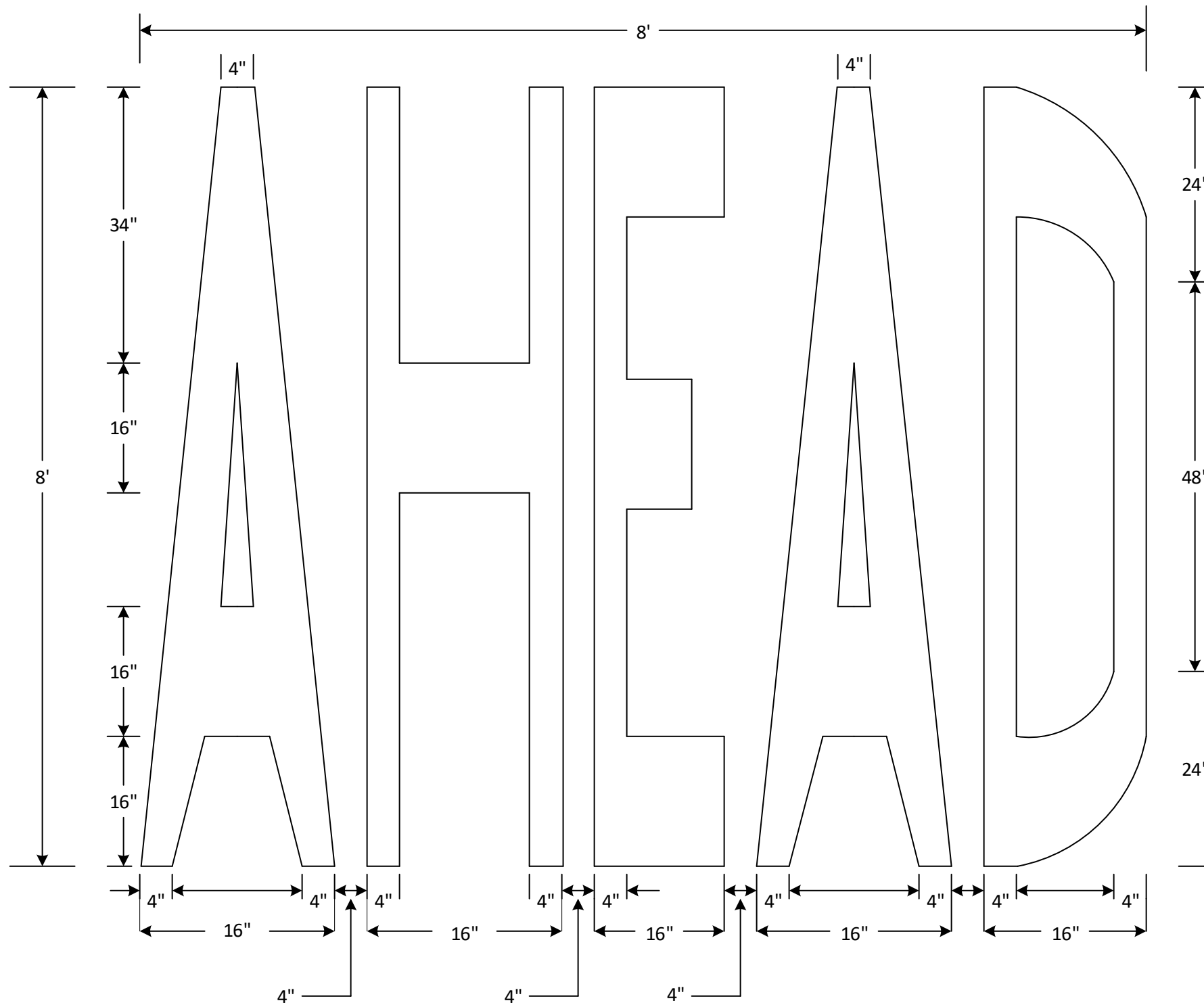
Traffic Control  
Devices

State	Project No.	Sheet No.
ND	CP-1800(020)	15



# Pavement Marking Installation Detail

State	Project No.	Sheet No.
ND	CP-1800(020)	16



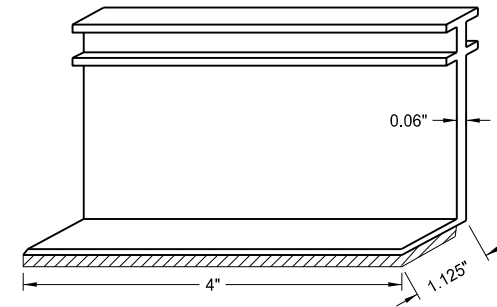
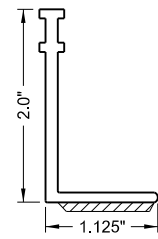
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Pavement  
Marking  
Installation  
Detail

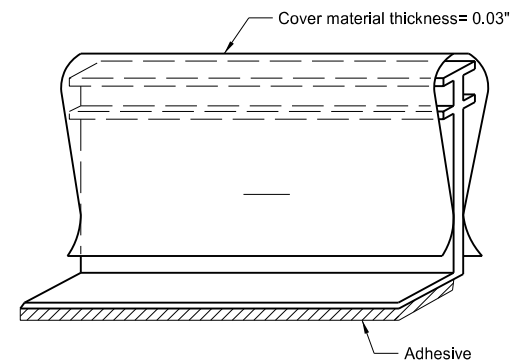
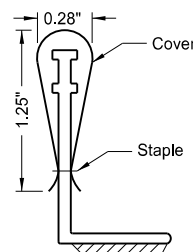
LANE MARKERS  
(Spotting Tab for Seal Projects only)

Notes:

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



Marker Body



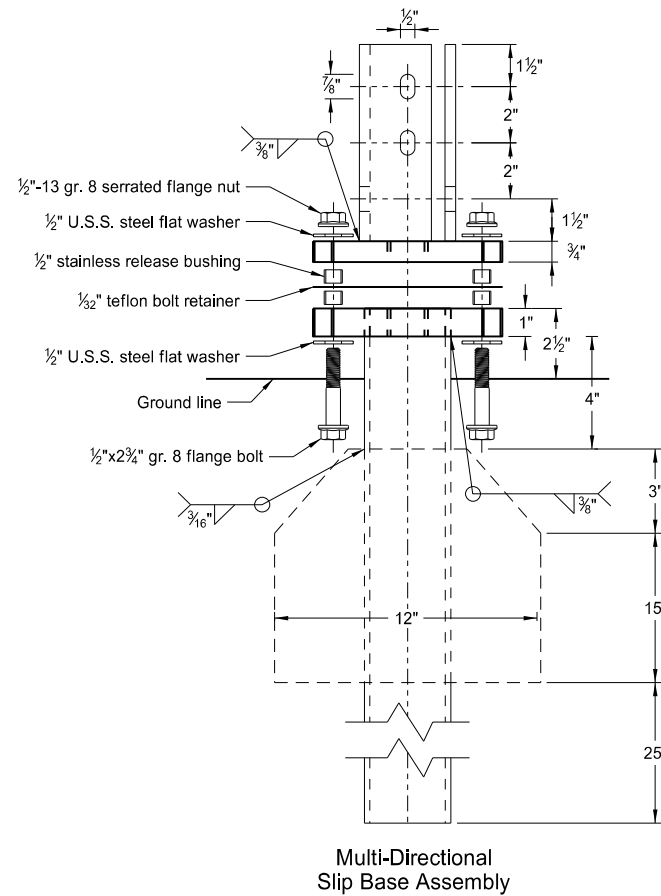
Marker Body with Protective Cover

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

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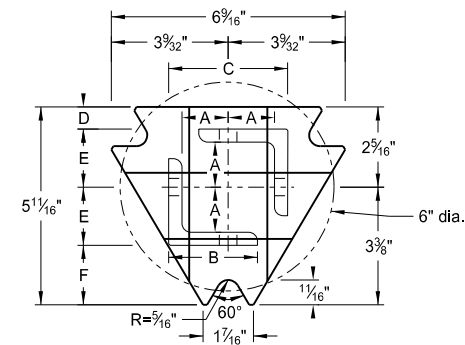
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

Perforated Tube



Multi-Directional Slip Base Assembly

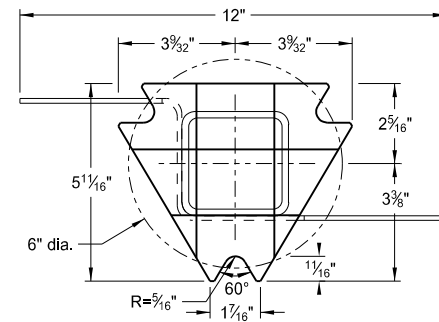
Traffic Flow



Top Post Receiver

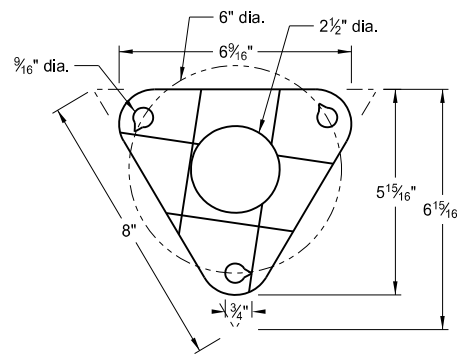
Plate - ASTM A572 grade 50  
Angle Receiver - 2 1/2" x 2 1/2" x 3/8" ASTM A36 structural angle

Traffic Flow



Bottom Soil Stub

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



Bolt Retainer for Base Connection  
Bolt Retainer- 1/2" Reprocessed Teflon

Notes:

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

Telescoping Perforated Tube

Number of Posts	Post Size in.	Wall 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 1/2	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

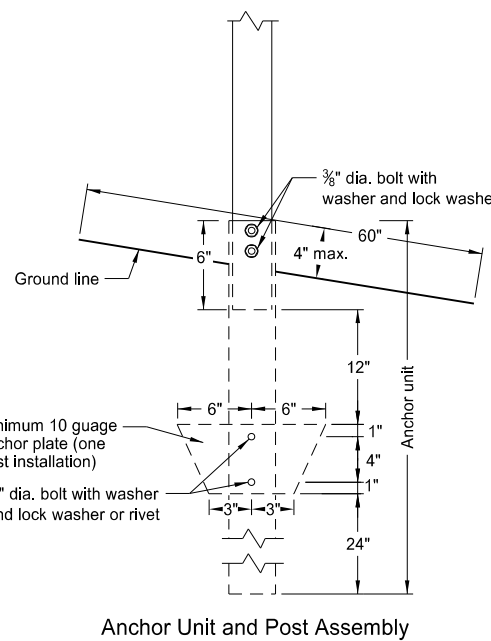
Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia in. <sup>4</sup>	Cross Sec. Area in. <sup>2</sup>	Section Modulus in. <sup>3</sup>
1 1/2 x 1 1/2	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2 1/4 x 2 1/4	0.105	12	2.773	0.561	0.695	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

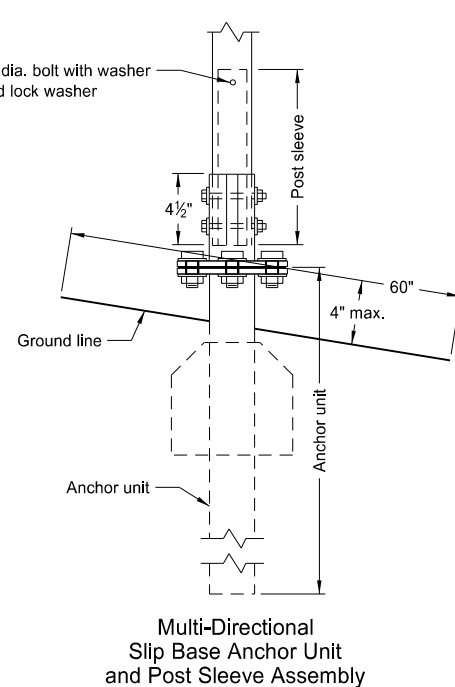
Square Post Sizes (B)	A	B	C	D	E	F
2 3/16" x 10 ga.	1 5/16"	2 1/2"	3 1/2"	2 5/32"	1 33/64"	1 7/8"
2 1/2" x 10 ga.	1 3/32"	2 1/2"	3 5/16"	5/8"	1 21/32"	1 3/4"

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

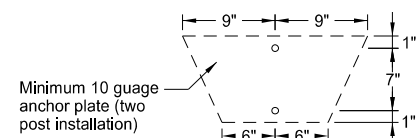
(B) For additional wind load, insert the 2 3/16" x 10 ga. into 2 1/2" x 10 ga.



Anchor Unit and Post Assembly



Multi-Directional Slip Base Anchor Unit and Post Sleeve Assembly

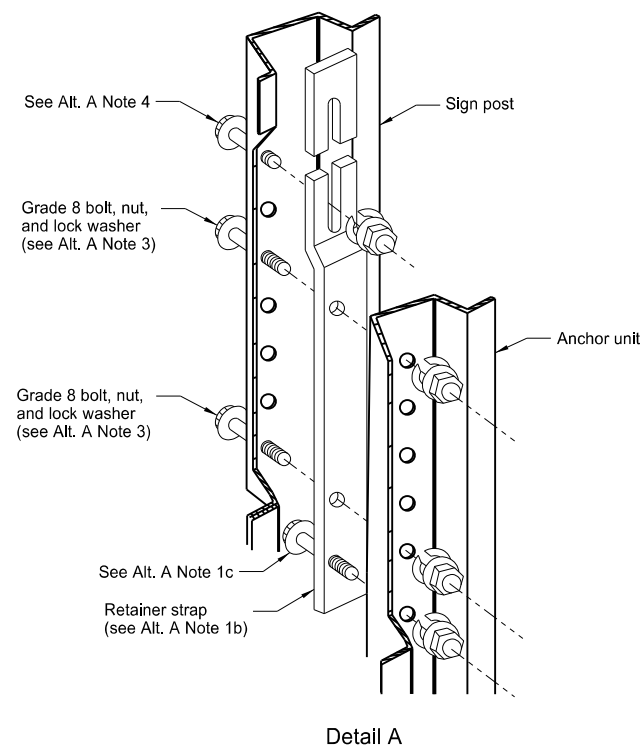


Minimum 10 gauge anchor plate (two post installation)

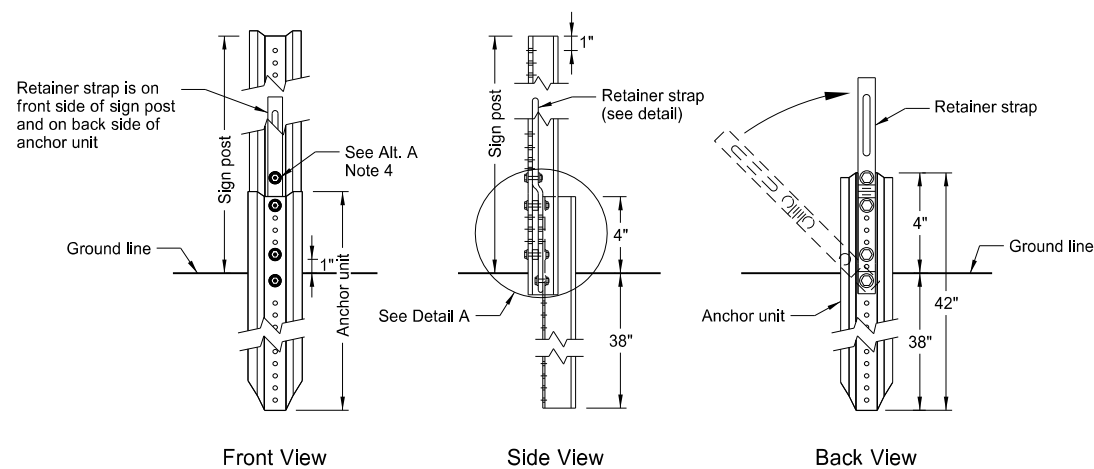
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp

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Registration Number  
PE- 4683,  
on 10/03/19 and the original document is stored at the North Dakota Department of Transportation

U-Channel Post



Detail A



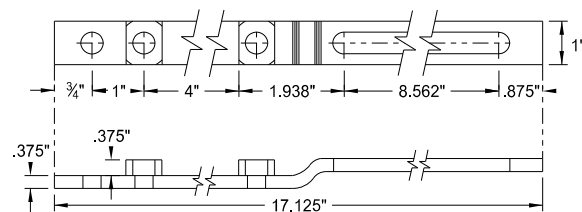
Front View

Side View

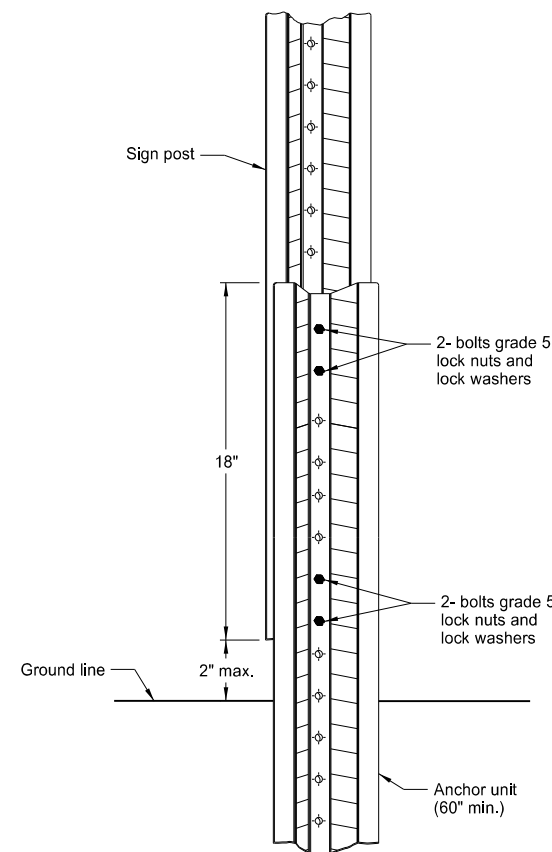
Back View

Breakaway U-Channel Detail Alternate A

Install a maximum of 2 posts within 7'.

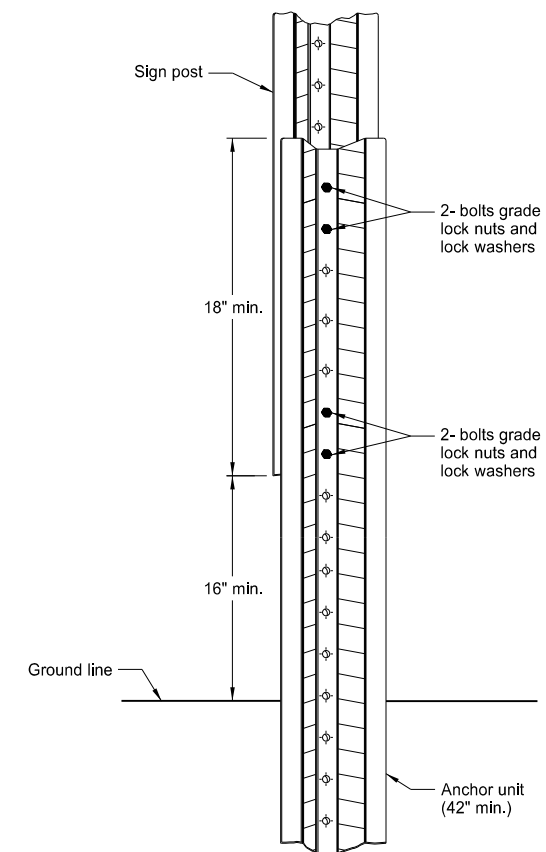


Retainer Strap Detail



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

Install a maximum of 3 posts within 7'.



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

Install a maximum of 3 posts within 7'.

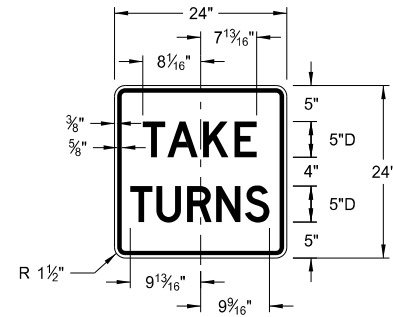
Alternate A Steps of Installation:

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

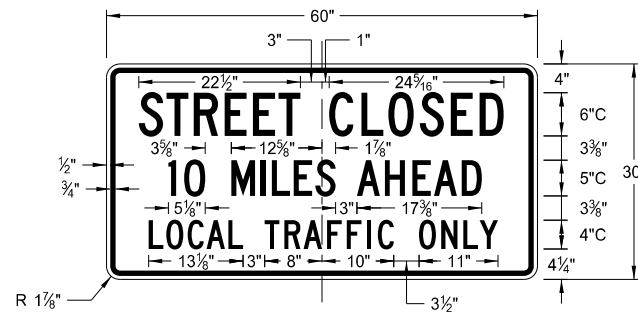
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17 10-03-19	Updated to active voice New Design Engr PE Stamp

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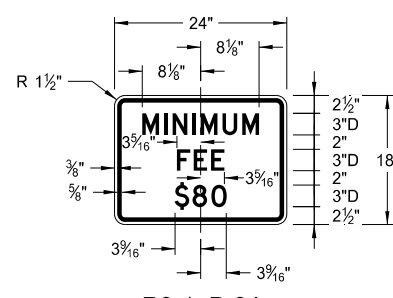
CONSTRUCTION SIGN DETAILS  
REGULATORY SIGNS



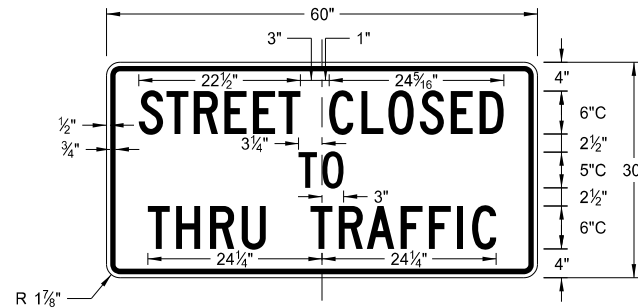
R1-50P-24  
Legend: black (non-refl)  
Background: white



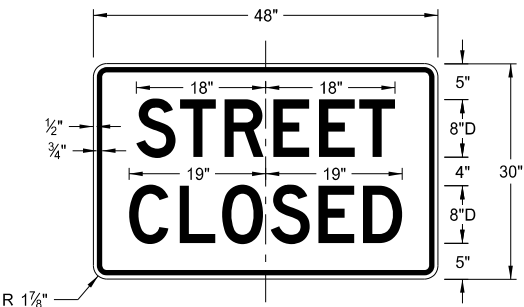
R11-3c-60  
Legend: black (non-refl)  
Background: white



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



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

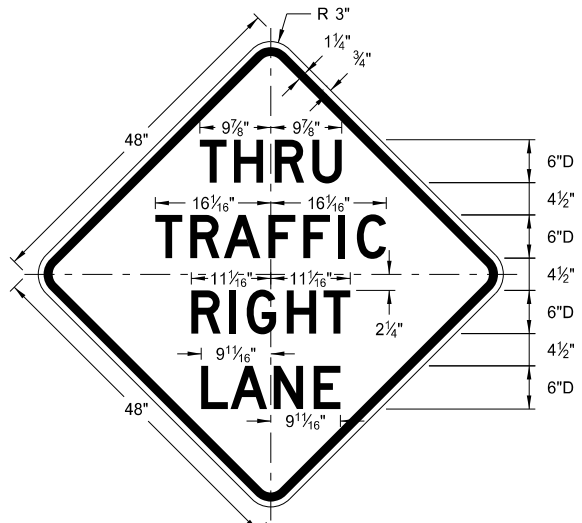


R11-2a-48  
Legend: black (non-refl)  
Background: white

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Revised sign number
10-03-19	New Design Engineer PE Stamp

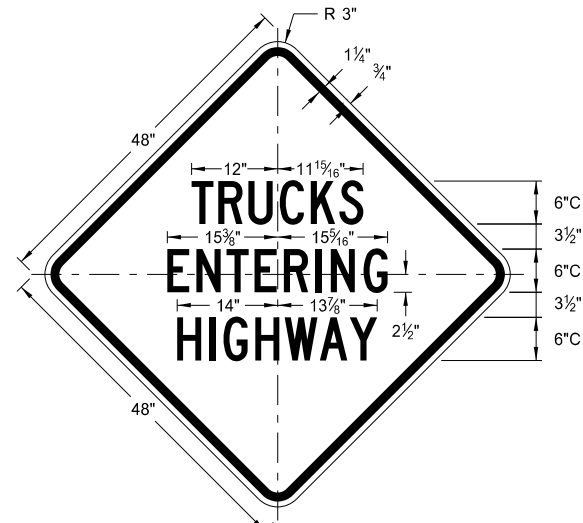
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of Transportation

CONSTRUCTION SIGN DETAILS  
WARNING SIGNS



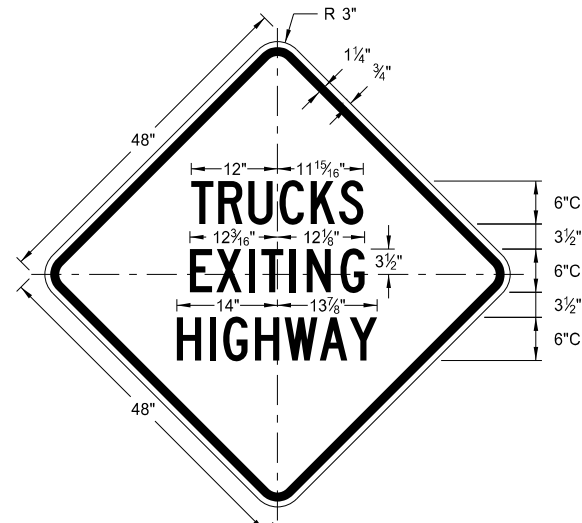
W5-8-48

Legend: black (non-refl)  
Background: orange



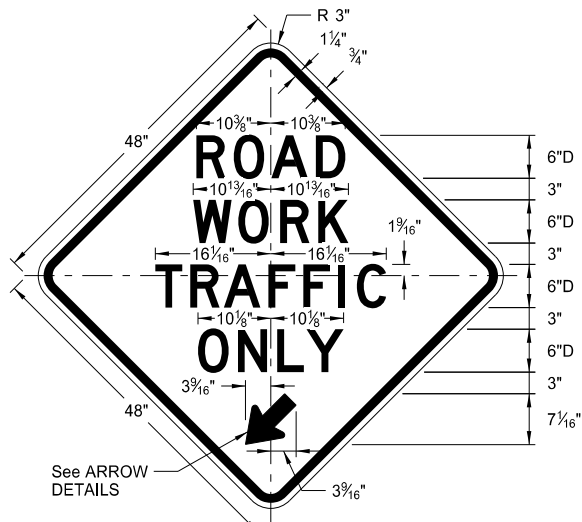
W8-53-48

Legend: black (non-refl)  
Background: orange



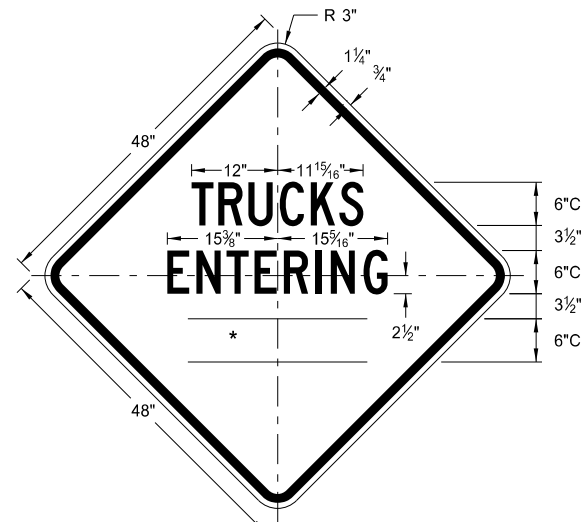
W8-56-48

Legend: black (non-refl)  
Background: orange



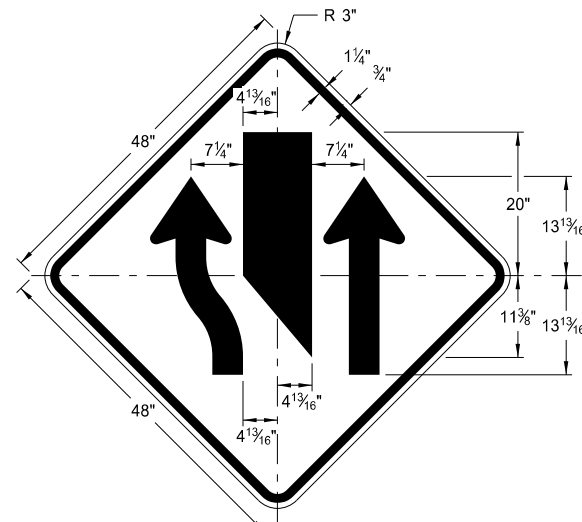
W5-9-48

Legend: black (non-refl)  
Background: orange



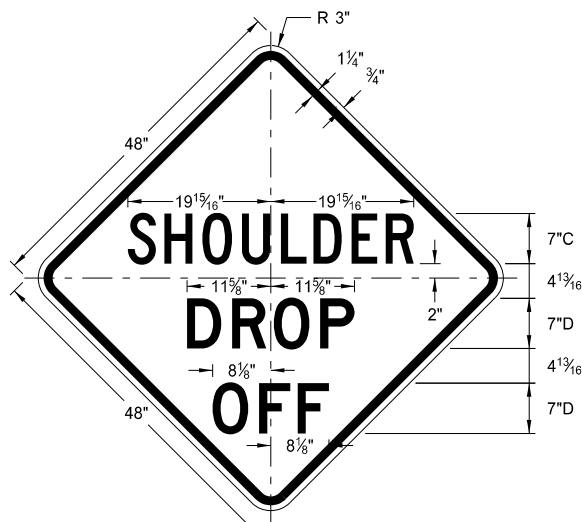
W8-54-48

Legend: black (non-refl)  
Background: orange



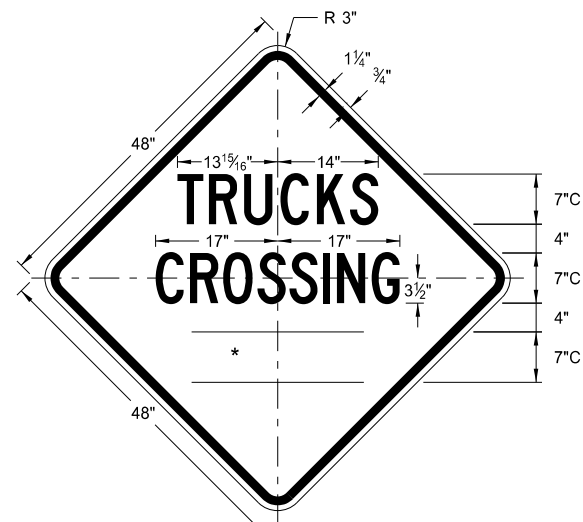
W9-3a-48

Legend: black (non-refl)  
Background: orange



W8-9a-48

Legend: black (non-refl)  
Background: orange

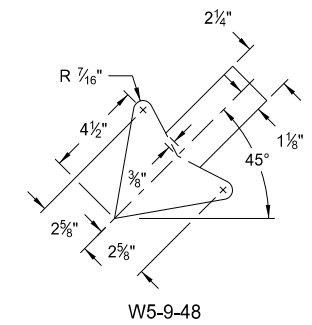


W8-55-48

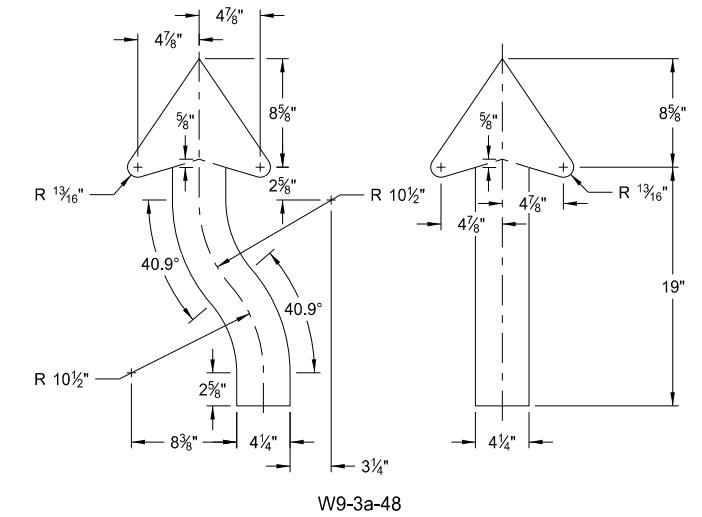
Legend: black (non-refl)  
Background: orange

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

\* DISTANCE MESSAGES



W5-9-48



W9-3a-48

ARROW DETAILS

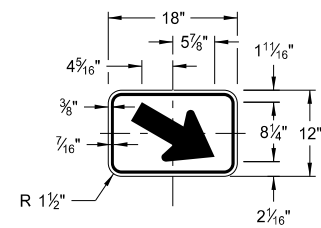
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number
5-31-18	Revised sign and arrow details
10-03-19	New Design Engineer PE Stamp

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CONSTRUCTION SIGN DETAILS  
WARNING SIGNS

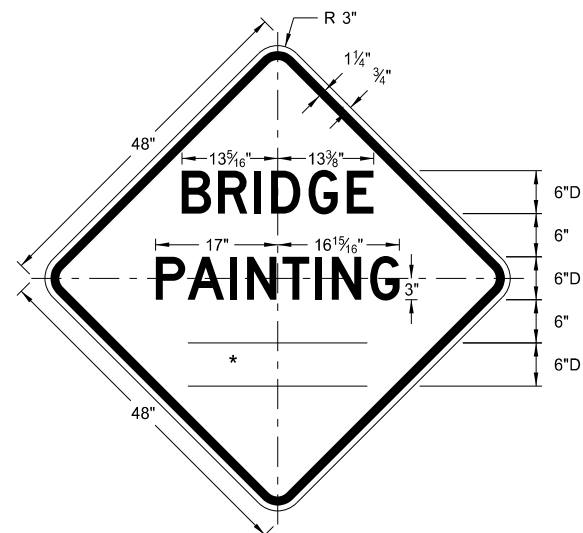
WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

\* DISTANCE MESSAGES



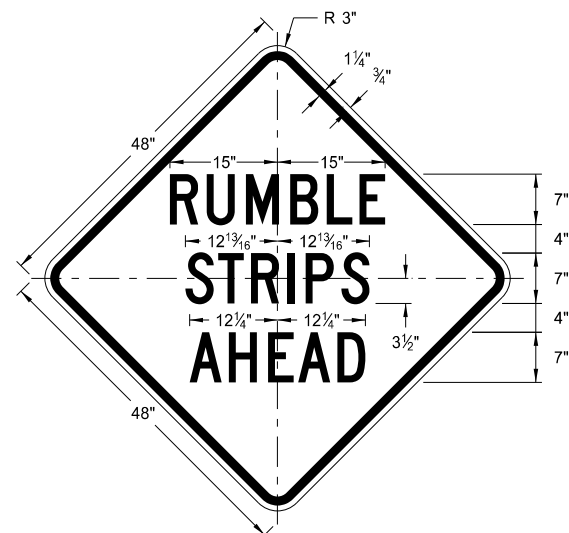
W16-7aP-18

Legend: black (non-refl)  
Background: orange



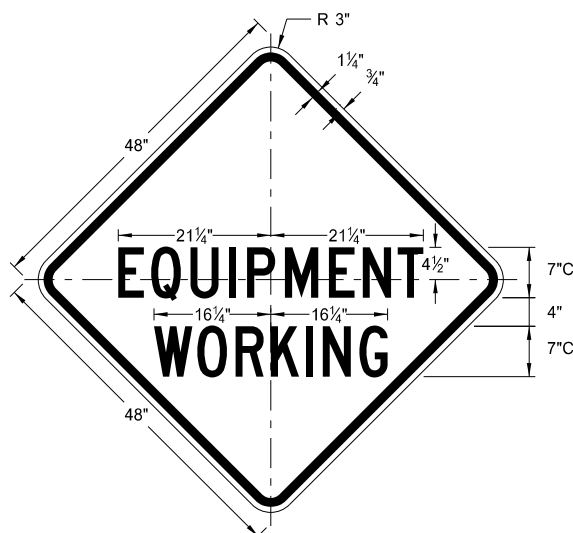
W21-50-48

Legend: black (non-refl)  
Background: orange



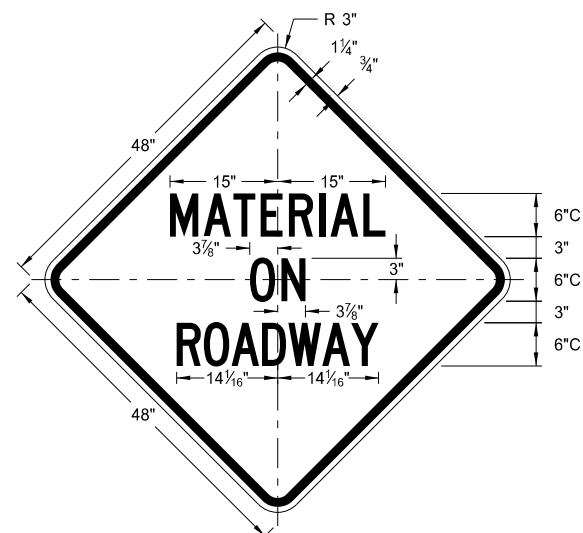
W21-53-48

Legend: black (non-refl)  
Background: orange



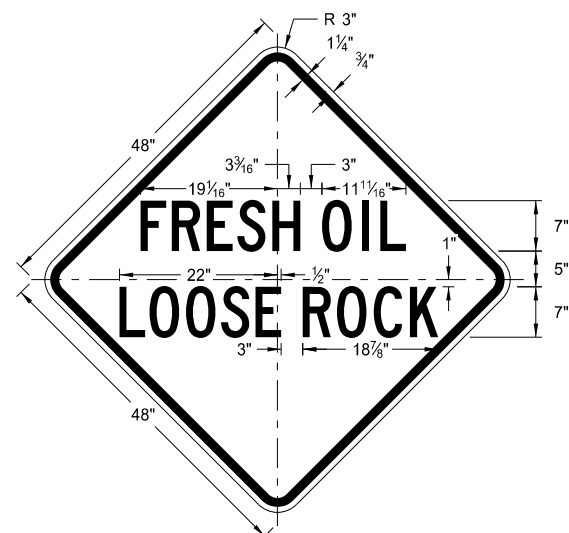
W20-51-48

Legend: black (non-refl)  
Background: orange



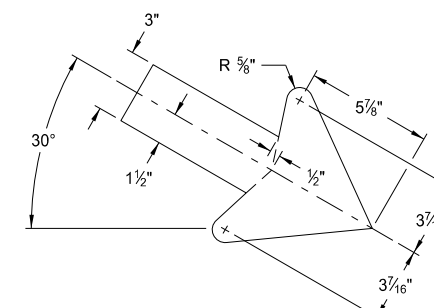
W21-51-48

Legend: black (non-refl)  
Background: orange

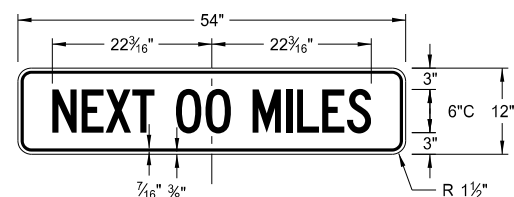


W22-8-48

Legend: black (non-refl)  
Background: orange

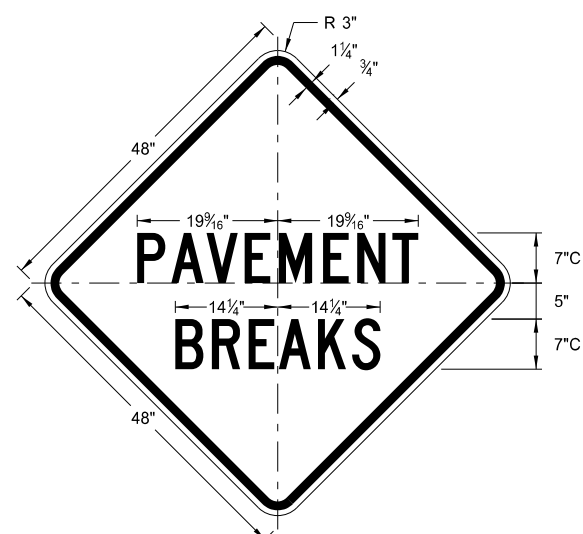


W16-7aP-18



W20-52P-54

Legend: black (non-refl)  
Background: orange



W21-52-48

Legend: black (non-refl)  
Background: orange

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

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ROAD CLOSURE LAYOUTS

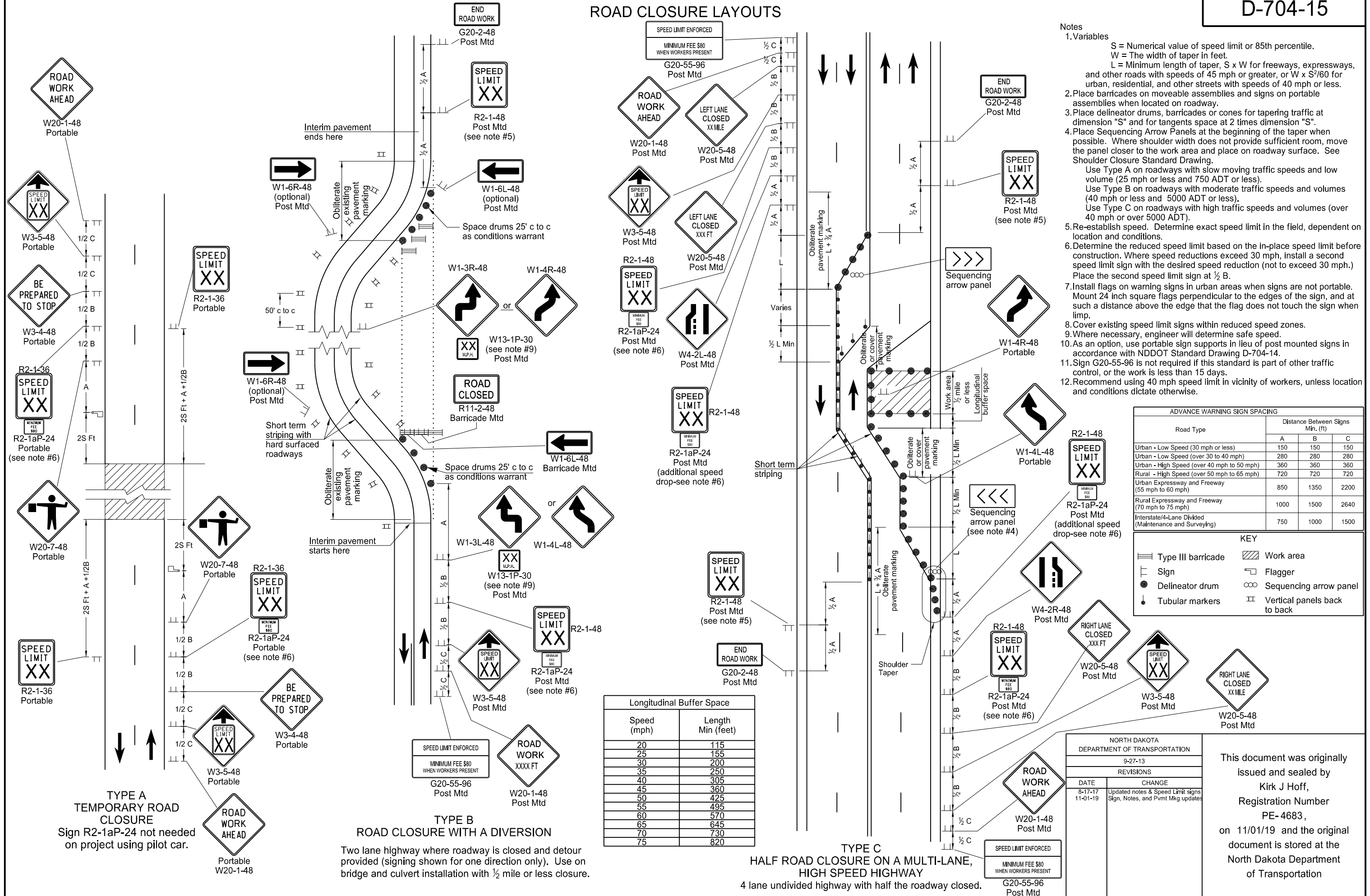
Notes

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

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

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

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

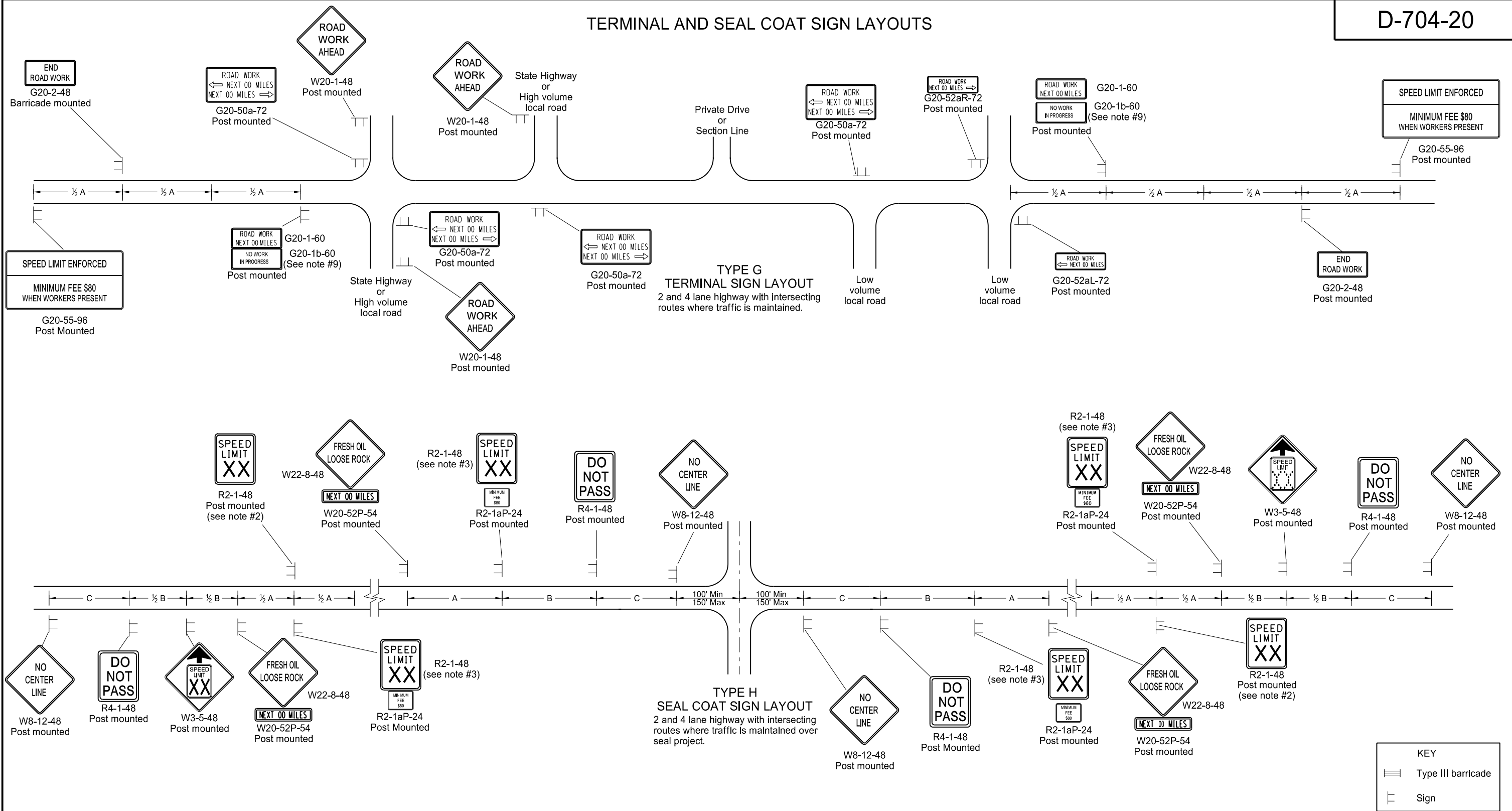


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated notes & Speed Limit signs
11-01-19	Sign, Notes, and Pmnt Mkg updates

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TERMINAL AND SEAL COAT SIGN LAYOUTS



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

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17 11-01-19	Updated notes & sign numbers. Note & sign updates.

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**KEY**

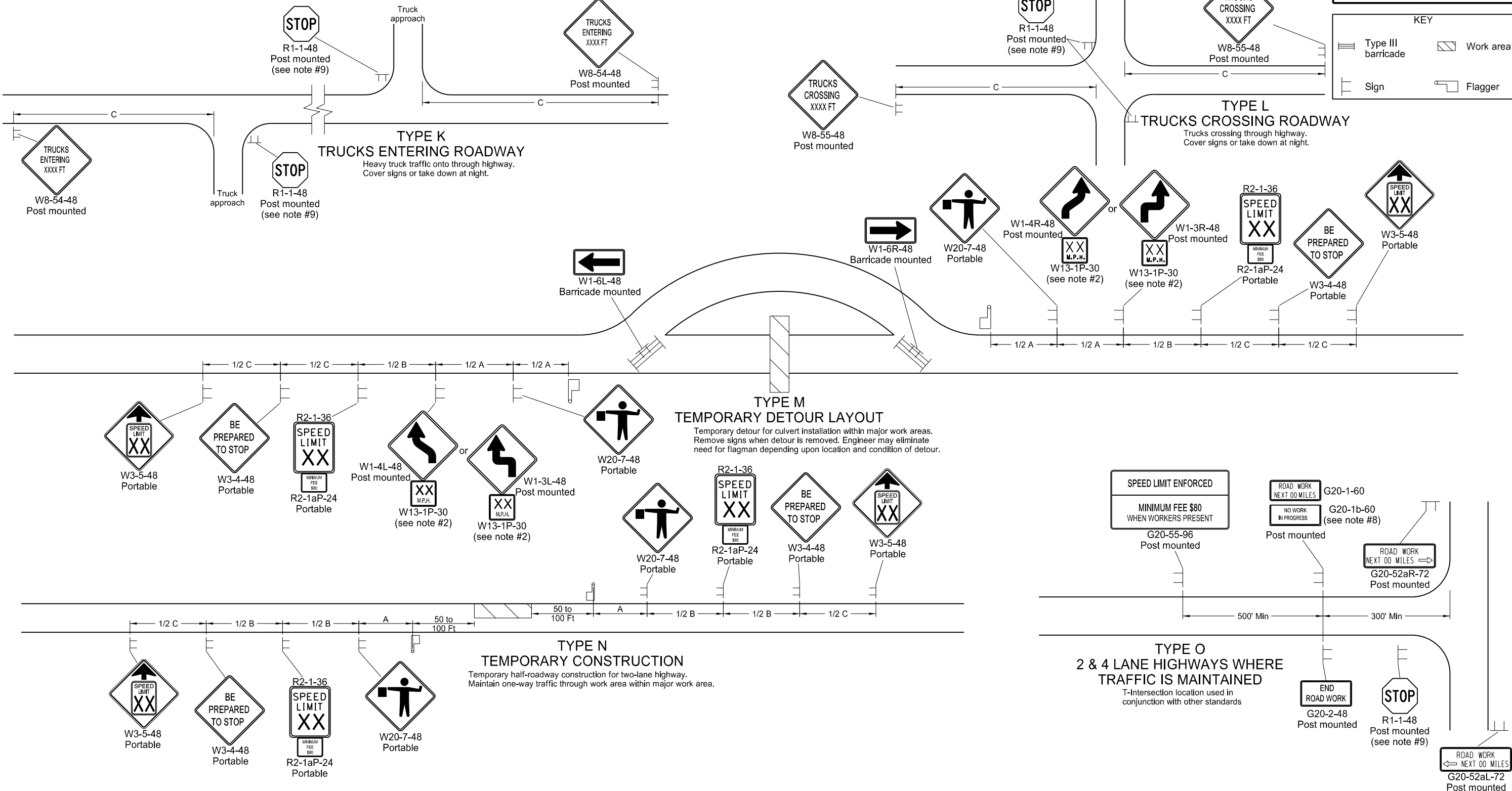
≡ Type III barricade

⊥ Sign

CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

**KEY**

- Type III barricade
- Sign
- Work area
- Flagger



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

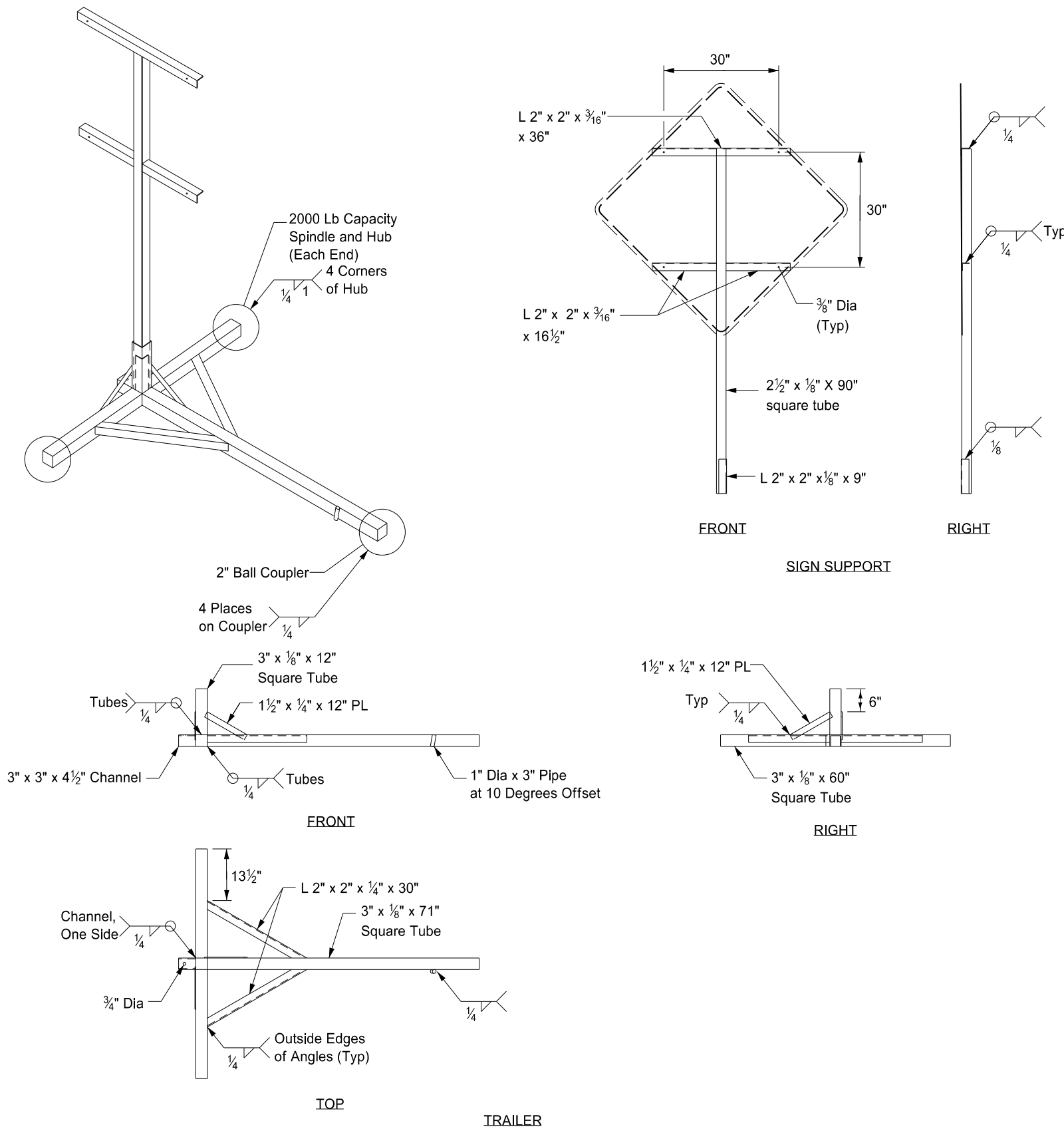
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17 11-01-19	Update notes & sign numbers Revised sign numbers & note 7

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PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50



Notes:

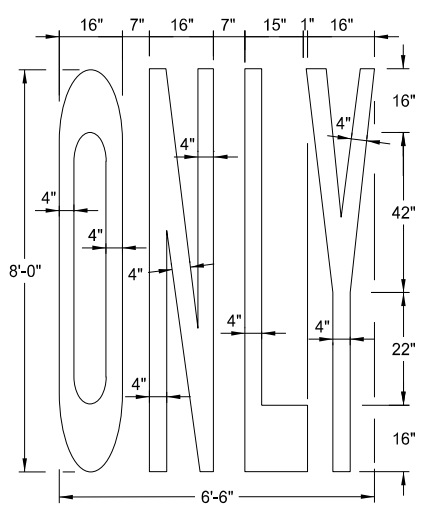
- ① The maximum weight of the assembly is 250 pounds.
- ② Use a 14" wheel and tire.
- ③ Automotive and equipment axle assemblies may not be used for trailer-mounted sign supports.
- ④ Other NCHRP 350 crash tested assemblies are acceptable.

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

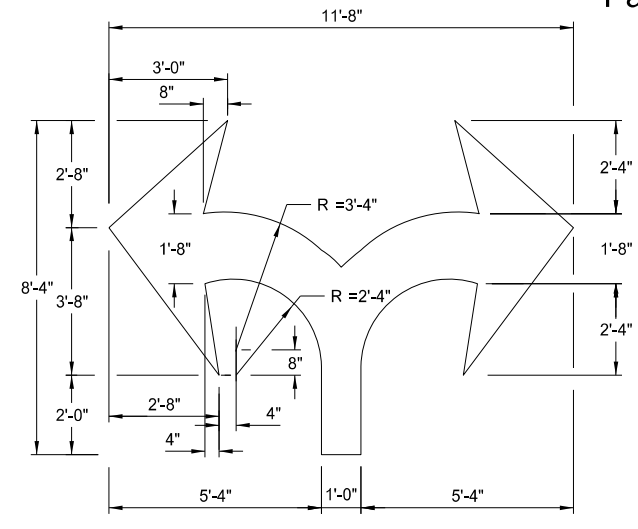
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# Pavement Marking Message Details

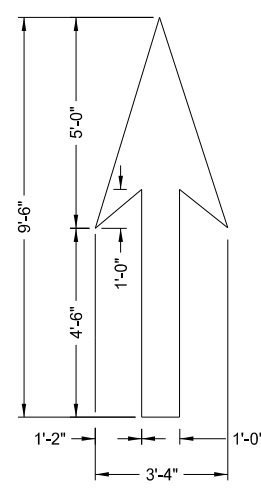
**D-762-1**



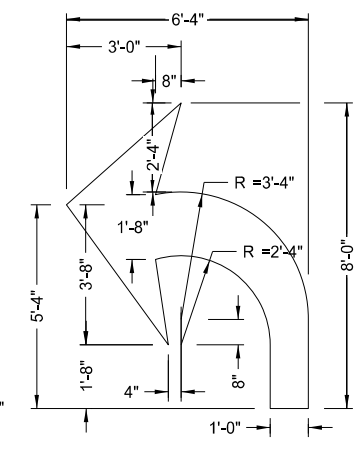
22 S. F.



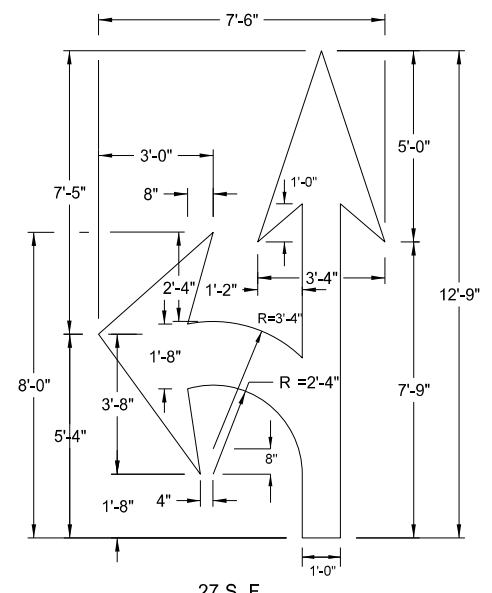
29 S. F.



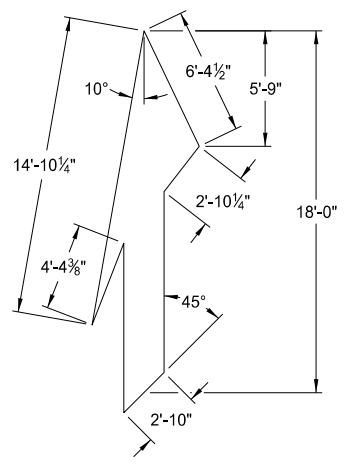
12 S. F.



16 S. F.

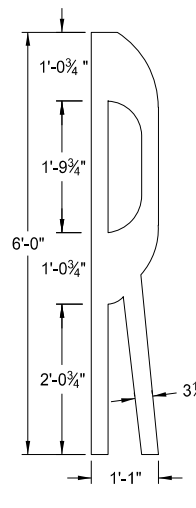


27 S. F.

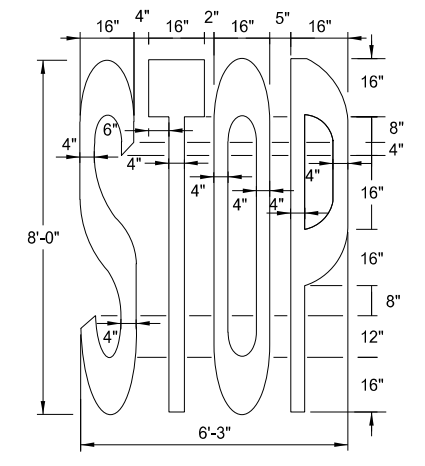


41 S. F.

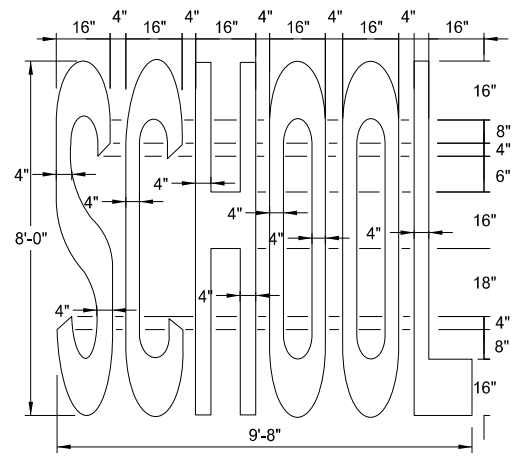
Note: Rotate merge arrow 20° from edge of roadway.



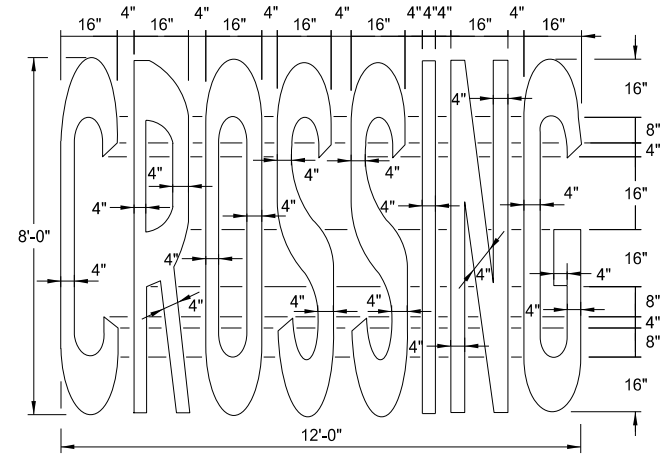
4 S. F.



22 S. F.



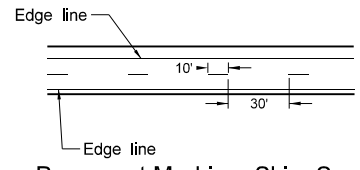
34.5 S. F.



46 S. F.

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

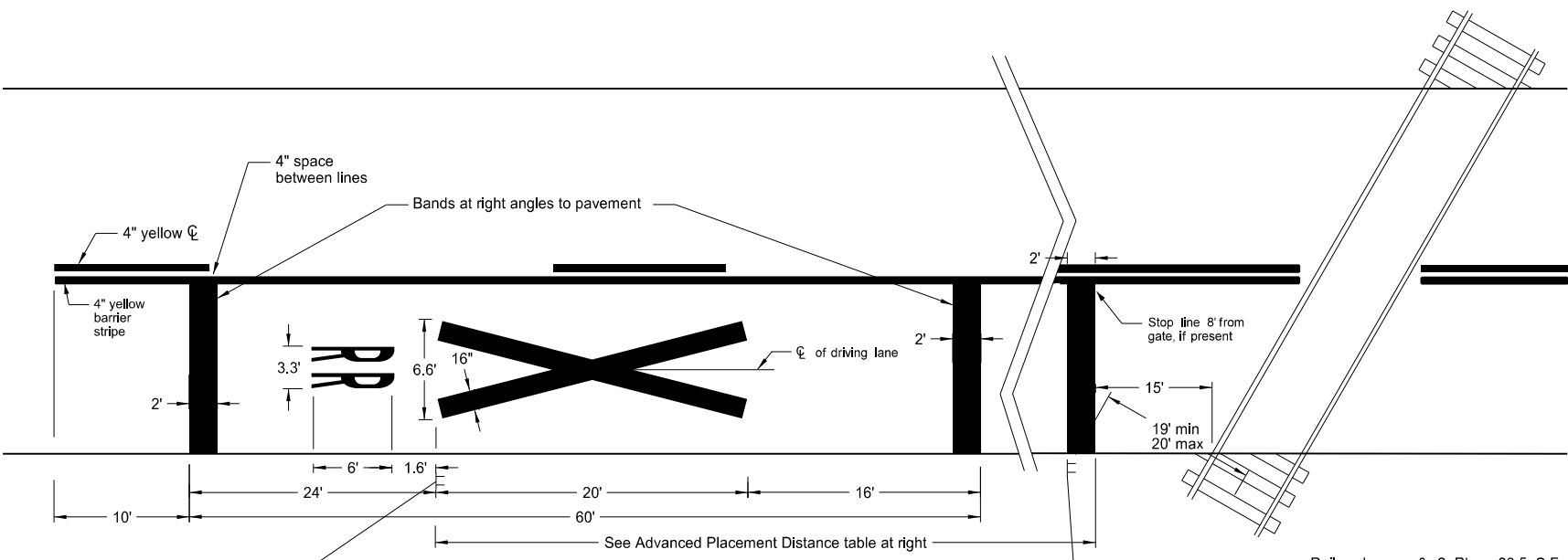
Chevron Crosshatching Table



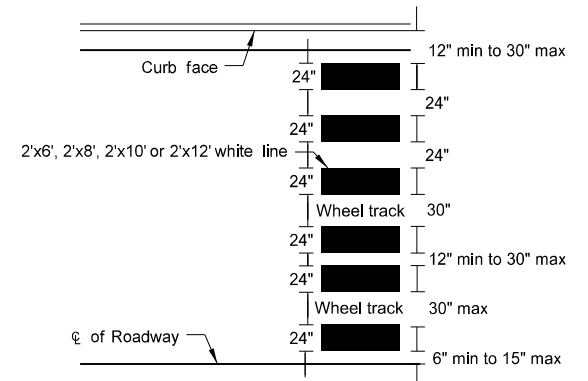
Centerline Pavement Marking Skip Spacing Detail

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

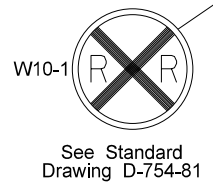
Advance Placement Distance for Railroad Warning Signs



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

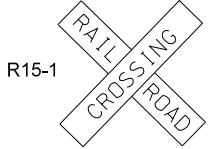


Continental Crosswalk Detail



See Standard Drawing D-754-81

Notes:  
Mark a three lane roadway with a centerline for two-lane approach operation on the approach to a crossing. On multi-lane roads, extend the transverse bands across all approach lanes, and use individual R X R symbols in each approach lane.  
See plans for correct message. Use white pavement markings unless noted otherwise.



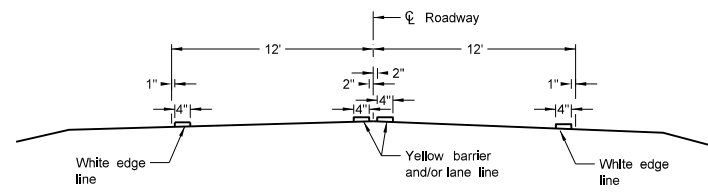
R15-1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-6-11	
REVISIONS	
DATE	CHANGE
10-17-17 08-27-19	Updated to active voice. New Design Engineer PE Stamp.

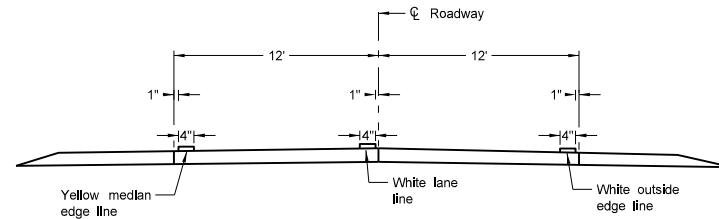
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Kirk J Hoff,  
Registration Number  
PE-4683,  
on 8/27/19 and the original document is stored at the North Dakota Department of Transportation

PAVEMENT MARKING

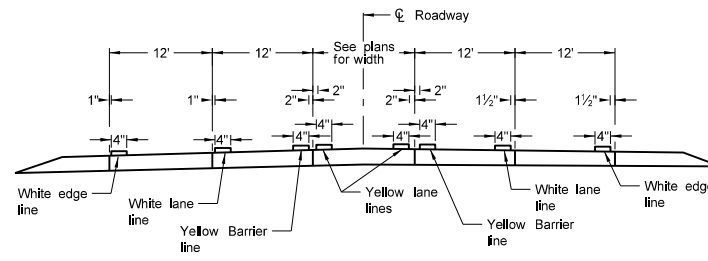
D-762-4



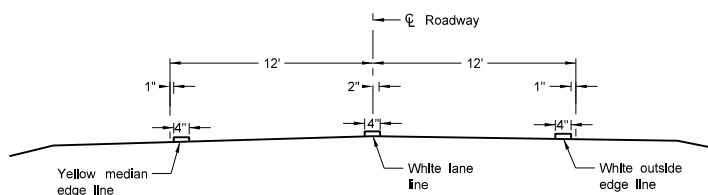
Two Lane Two Way  
RURAL ROADWAY



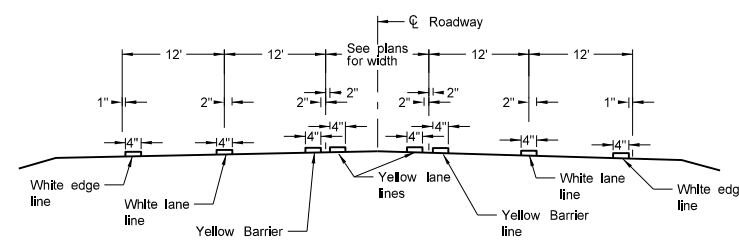
Two Lane Roadway  
INTERSTATE HIGHWAY  
Concrete Section



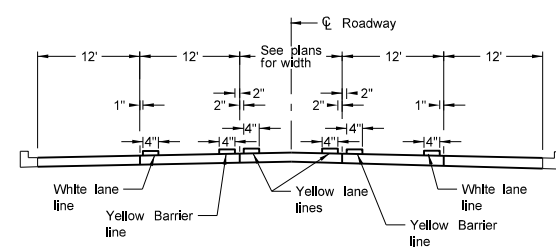
RURAL FIVE LANE ROADWAY  
Concrete Section



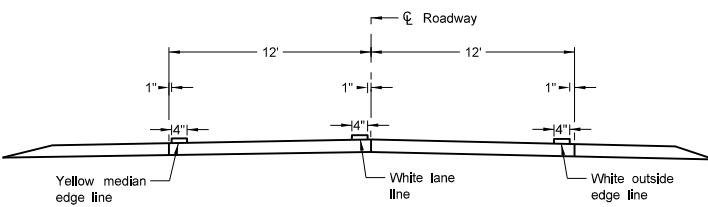
Two Lane Divided  
Rural Roadway  
PRIMARY HIGHWAY  
Asphalt Section



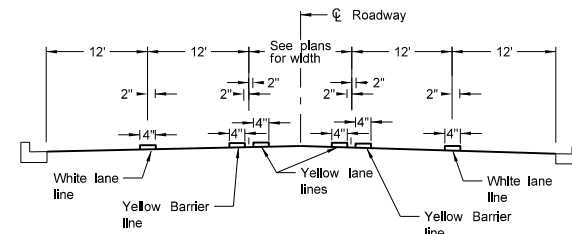
RURAL FIVE LANE ROADWAY  
Asphalt Section



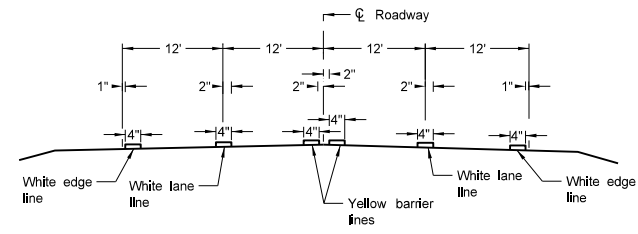
URBAN FIVE LANE SECTION  
Concrete Section



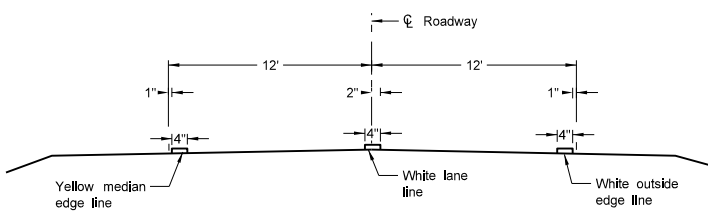
Two Lane Roadway  
PRIMARY HIGHWAY  
Concrete Section



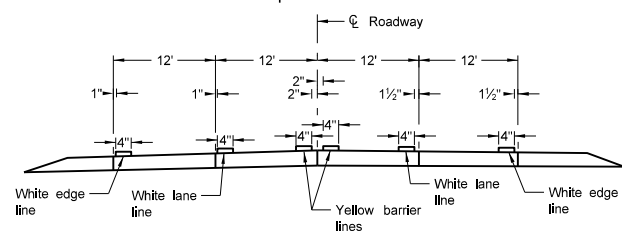
URBAN FIVE LANE SECTION  
Asphalt Section



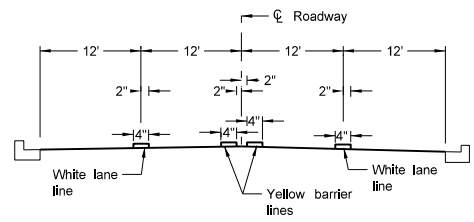
RURAL FOUR LANE ROADWAY  
Asphalt Section



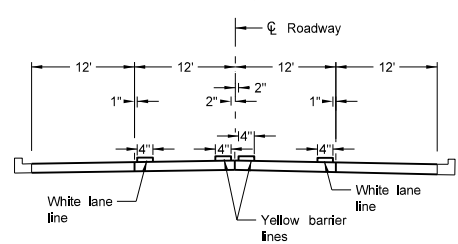
Two Lane Roadway  
INTERSTATE HIGHWAY  
Asphalt Section



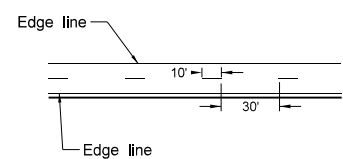
RURAL FOUR LANE ROADWAY  
Concrete Section



URBAN FOUR LANE SECTION  
Asphalt Section



URBAN FOUR LANE SECTION  
Concrete Section



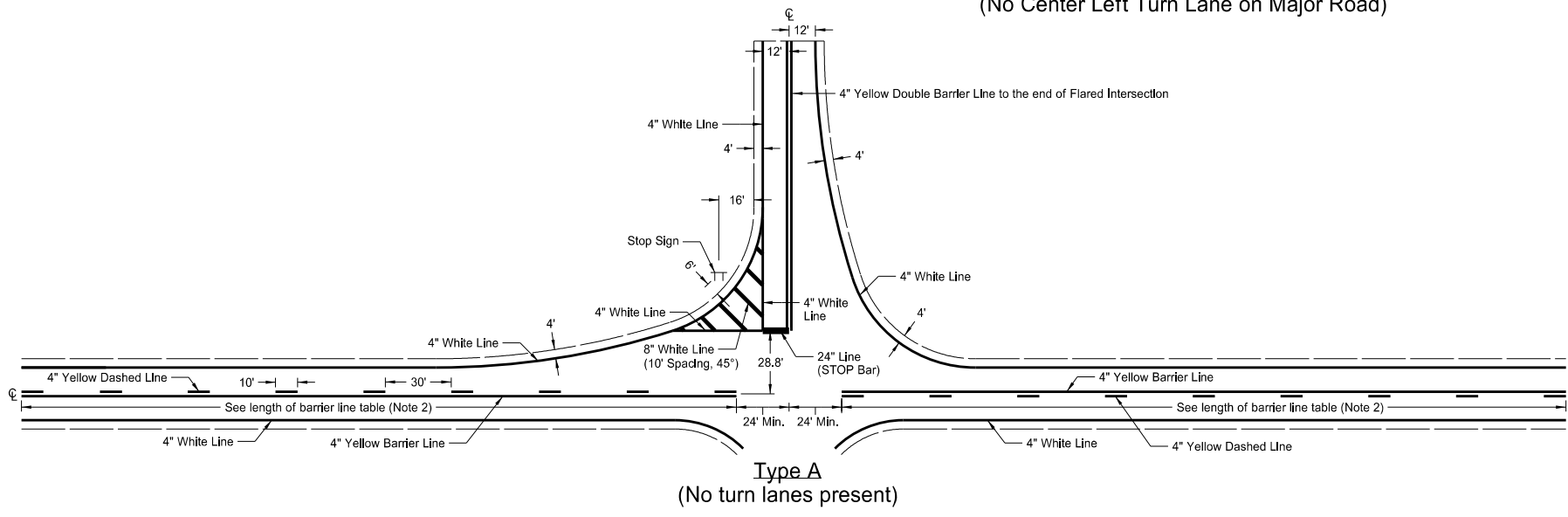
CENTERLINE PAVEMENT MARKING SKIP SPACING DETAIL

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

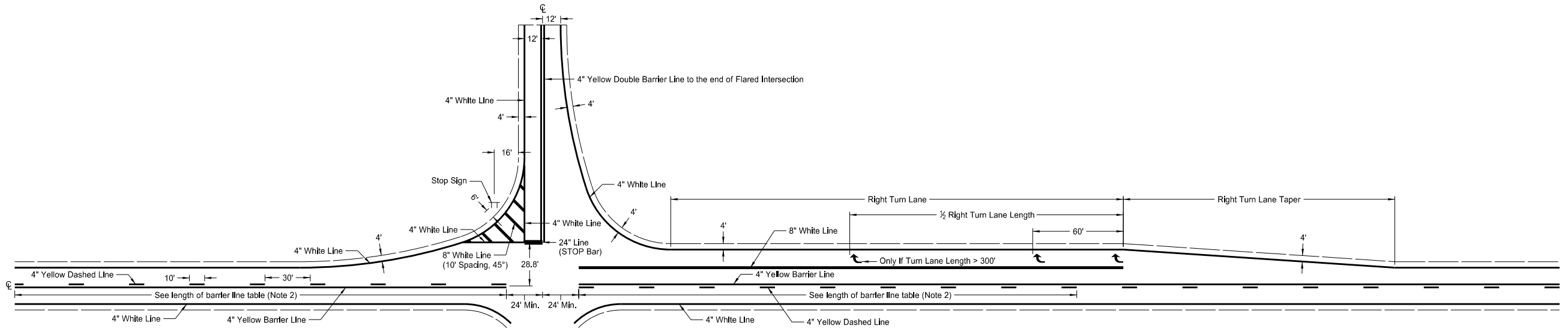
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engineer PE Stamp.

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Registration Number  
PE-4683,  
on 8/27/19 and the original document is stored at the North Dakota Department of Transportation

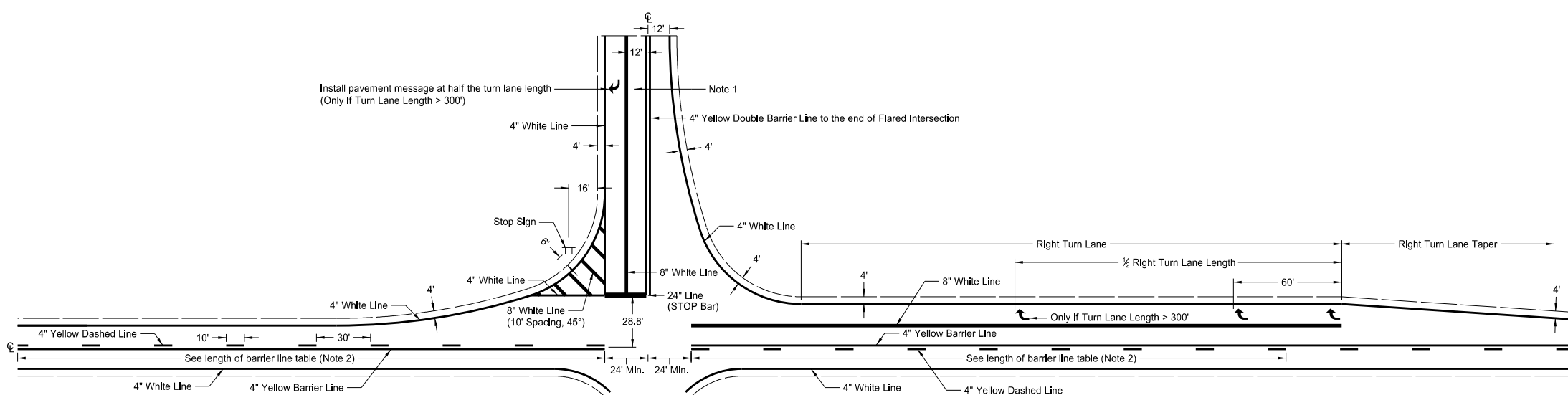
PAVEMENT MARKING FOR STANDARD 90 DEGREE FLARED INTERSECTION  
(No Center Left Turn Lane on Major Road)



Type A  
(No turn lanes present)



Type B  
(Right Turn Lane on Major Road)



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

Notes

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

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

———— 4" Marking  
 ———— 8" Marking  
 ———— 24" Marking

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

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 Registration Number  
 PE- 4683,  
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