

DESIGN DATA - 14th St NE	
Traffic	Average Daily
Current - 2025	Total: 330
Forecast - 2045	Total: 365
Design Speed: 25 MPH	
DESIGN DATA - 14th Ave NE	
Traffic	Average Daily
Current - 2025	Total: 250
Forecast - 2045	Total: 275
Design Speed: 25 MPH	

	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	SU-3-982(042)	24297	1	1

CITY OF DEVILS LAKE, NORTH DAKOTA  
PLANS FOR FEDERAL AID PROJECT NUMBER  
SU-3-982(042)  
RAMSEY COUNTY, NORTH DAKOTA  
STREET IMPROVEMENT DISTRICT 81-25  
14th St NE and 14th Ave NE  
Hot Mix Asphalt, Reshape Aggregate Base, Salvaged Base Course

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	7/1/2024
Supplemental Specifications	None

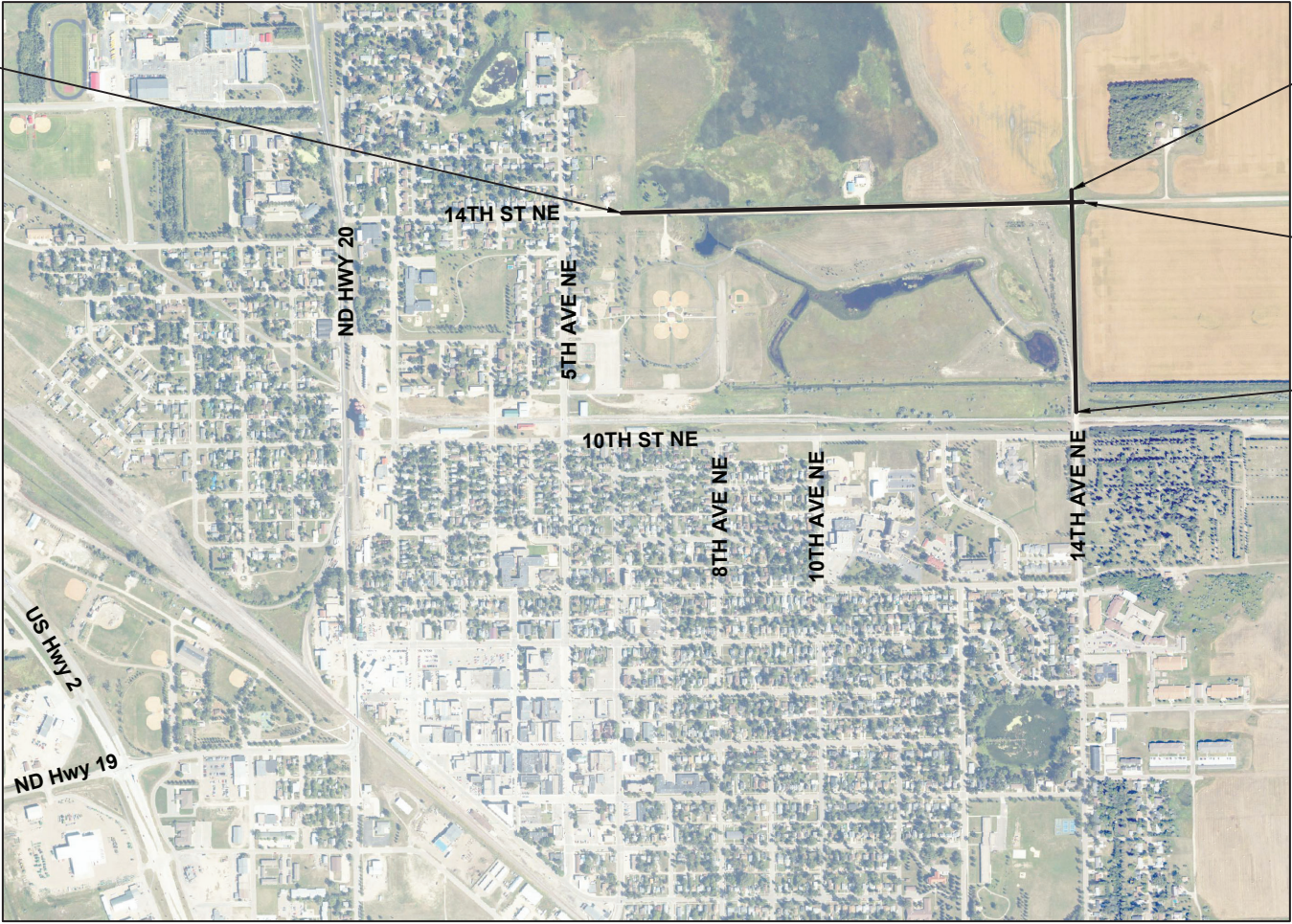
DESCRIPTION	NET MILES	GROSS MILES
14TH ST NE	0.634	0.634
14TH AVE NE	0.305	0.305
TOTAL	0.939	0.939

Begin 14th St NE  
Sta 20+20

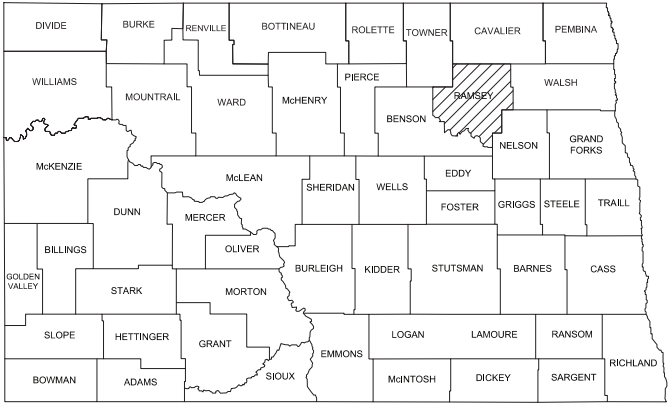
End 14th Ave NE  
Sta 53+82

End 14th St NE  
Sta 53+68

Begin 14th Ave NE  
Sta 37+72



PROJECT LOCATIONS



STATE OF NORTH DAKOTA  
SHOWING COUNTIES



devils lake  
Engineering

CITY OF DEVILS LAKE  
ENGINEERING DEPARTMENT  
Mike Grafsgaard - City Engineer  
Devin Gathman - Assistant City Engineer  
Helen Carlson - Engineering Admin

CITY COMMISSION  
Jim Moe - President  
Rob Hach - Eng. Commissioner  
Jason Pierce  
Joe Knowski  
Lisa Uhlenkamp

423 6th St NE • PO BOX 1048 • Devils Lake, ND 58301 • www.dvln.com • (701) 662-7600 Ext. 2

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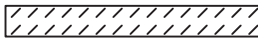












SECTION NO.	SHEET NO.	DESCRIPTION
1	1	Title Sheet
2	1	Table of Contents and List of Standard Drawings
4	1	Scope of Work
6	1	Plan Notes
8	1	Estimate of Quantities
10	1	Basis of Estimate
20	1	General Details
30	1	Typical Sections
60	1 - 7	Plan Sheets
100	1	Traffic Control Devices List
100	2	Traffic Control Layout

STANDARD NO.	DESCRIPTION
D-704-7 & 8	Breakaway Systems for Construction Zone Signs
D-704-9	Construction Sign Details - Terminal and Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11	Construction Sign Details - Warning Signs
D-704-13	Barricade and Channelizing Device Details
D-704-14	Construction Sign Punching and Mounting Details
D-704-15	Road Closure Layouts
D-704-20	Lane Closures on Urban Streets Layouts
D-704-22	Miscellaneous Sign Layouts
D-704-50	Portable Sign Support Assembly
D-706-1	Bituminous Laboratory

LIST OF SPECIAL PROVISIONS

SSP 3	Local Agency Contracts
SSP 4	Longitudinal Joint Density

LEGEND

	HMA Overlay		Storm Inlet
	Remove Bituminous Surfacing		Storm Manhole
	Full Depth		Sanitary Manhole
	Underground Gas Line		Gate Valve
	Sanitary Sewer		Fire Hydrant
	Storm Sewer		
	Water Main		
	Underground Telephone		

LOCAL UTILITY AND EMERGENCY CONTACTS

<b>CITY ENGINEER</b> City Engineering Dept. Devils Lake, ND P: (701) 662-7600, Ext 2	<b>GAS</b> Montana Dakota Utilities (MDU) Devils Lake, ND P: (701) 662-4990	<b>POLICE</b> Devils Lake Police Dept. Devils Lake, ND P: (701) 662-0712
<b>CITY WATER &amp; SEWER</b> City Public Works Dept. Devils Lake, ND P: (701) 662-7623	<b>POWER</b> Otter Tail Power Company Devils Lake, ND P: (701) 662-4021	<b>AMBULANCE</b> Lake Region Ambulance Devils Lake, ND P: (701) 662-8832
<b>NDDOT</b> Devils Lake District Devils Lake, ND P: (701) 665-5100	<b>CABLE TELEVISION</b> Midco Devils Lake, ND P: (701) 662-8766	<b>FIRE</b> Devils Lake Fire Dept. Devils Lake, ND P: (701) 662-3913
<b>UTILITY LOCATING</b> North Dakota One Call P: 1-800-795-0555 P: 811	<b>TELEPHONE</b> NDTC Devils Lake, ND P: (701) 662-1100	



TABLE OF CONTENTS AND LIST OF STANDARD DRAWINGS

DRWN. BY DTG	CHD. BY MG	PROJECT NO. 250101
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(042)	4	1

5TH AVE NE

11TH ST NE

14TH ST NE

14th St NE  
Sta 20+20  
Begin Overlay

Devils Lake  
Park District

Midco

14th Ave NE  
Sta 53+82  
End Overlay

14th St NE  
Sta 53+68  
End Overlay

Devils Lake  
Park District

14th Ave NE  
Sta 37+72  
Begin Overlay

Northern Plains  
Railroad

10TH ST NE

6TH AVE NE

7TH AVE NE

8TH AVE NE

10TH AVE NE

13TH AVE NE

14TH AVE NE

1"=300'



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## NOTES

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-3-982(042)	6	1

**100-P01** **GENERAL:** Completion date for the entire project will be **September 20<sup>th</sup>, 2025**. Construction operations will take place on the project only between the hours of 7:00 am and 10:00 pm.

Due to the annual Devils Run Car Show taking place May 30<sup>th</sup> – June 1<sup>st</sup>, no work will begin until after June 1<sup>st</sup>.

**100-P02**      **COORDINATION OF PROJECTS:** Other projects in the vicinity of this project are under contract during the 2025 construction season. These projects include State Project NHU-CRP-3-020(143)102 and City Projects 250102 and 250103. Coordinate with the Engineer to ensure traffic control does not impact these projects.

**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.

**107-P01** **ACCESS:** Coordinate with Midco and the Devils Lake Park District for access to driveways along the project, as shown in Section 4. Always provide access to these parties during construction prior to paving these driveways. Provide 24-hour notice to these parties prior to paving these driveways.

**Midco – P: (701) 662-8766**  
**Devils Lake Park District – P: (701) 662-8243**

**107-P02** **HAUL ROADS:** College Dr N, 5<sup>th</sup> Ave NE & 10<sup>th</sup> St NE are all considered truck routes within the City of Devils Lake and will be used to the extent practical for removing and supplying material to the project. Exact haul routes for the project will be coordinated and approved by the Engineer.

**202-P01**     **REMOVAL OF BITUMINOUS SURFACING:** Asphalt designated for removal may vary in thickness. There will be no additional compensation for removal of extra thickness. Dispose of all removed asphalt in accordance with 107.17. Removal areas will be marked in the field by the Engineer. Include all costs to saw a vertical face directly adjacent to the removed asphalt. Include all sawing costs in the "REMOVAL OF BITUMINOUS SURFACING" bid item. Any asphalt removed beyond the designated work limits will be at the Contractor's expense.

**202-P02 REMOVAL OF BITUMINOUS SURFACING:** Remove 5 inches of aggregate base where the existing gravel section meets the asphalt section as shown in Section 20. Include all costs to remove and reuse the existing aggregate base at these locations in the "REMOVAL OF BITUMINOUS SURFACING" bid item.

**203-P01**     **TOPSOIL - IMPORTED:** Provide imported topsoil that consists of loose, fertile and loamy material that is free from roots, vegetation, or other debris of such size and quantity that prevents proper placement of topsoil. Screen topsoil so that it is free of stones and clods over ½ inch in greatest dimension and free from noxious weeds, seeds, roots and any other deleterious material. Place topsoil at a depth of 6 inches.

**302-P01 RESHAPE AGGREGATE BASE COURSE:** Scarify the existing aggregate to a depth of 4-inches. If subgrade material or other non-aggregate material becomes present during the scarifying process, notify the Engineer and reduce scarify depth. Reshape and manipulate the existing aggregate roadway to the proposed cross slopes. Compact the existing aggregate as specified in 302.04 B. Include the cost of materials, equipment, labor and incidentals required for this operation in the price bid for "RESHAPE AGGREGATE BASE COURSE".

**302-P02** **SALVAGED BASE COURSE:** A discretionary quantity has been provided in Section 10 to be used to add to the existing roadway section to shape the roadway to the proposed cross slopes as shown in Section 30 prior to HMA placement. Additional quantity has been provided to complete appropriate tie-ins at all driveways and the end of pavement sections.

**401-P01** **TACK COAT:** Apply tack coats as required that meet the requirements in Section 401 using an application rate of 0.05 Gal/SY. Include the cost for tack coat in the bid item "SUPERPAVE FAA 43".

**704-P01** **TRAFFIC CONTROL:** Traffic control for this project will consist of a temporary lane closure, flagging and a pilot car.

Traffic control device quantities are based on the following list:

1. Standard Drawing D-704-15, Layout A, flagging stations near the active work area require sign W20-7a-48 only;
2. Standard Drawing D-704-20, Layout G, signing will be required at junctions as shown on the Traffic Control Signing Layouts; and
3. Standard D-704-22, Layouts K and/or L.

Traffic Control Devices will comply with the following Standard Drawings:  
D-704-7, 8, 9, 10, 11, 13, 14, 15, 20, 22, & 50 as applicable.

The Contractor will be required to conform to the current MUTCD when installing and maintaining the traffic control signing.

**754-P01**     **RESET SIGNS:** Any signs that need to be reset following HMA and topsoil placement will be completed by City of Devils Lake forces, once work is completed. Coordinate with the Engineer once work is completed to allow sign resetting, if needed, to be completed.



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## PLAN NOTES

DRWN. BY DTG	CHKD. BY MG	PROJECT NO. 250101
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ESTIMATE OF QUANTITIES

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-3-982(042)	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
103	0100	CONTRACT BOND	L SUM	1
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	40
203	0119	TOPSOIL-IMPORTED	SY	835
251	0200	SEEDING CLASS II	ACRE	0.173
253	0201	HYDRAULIC MULCH	ACRE	0.173
302	0100	SALVAGED BASE COURSE	TON	1,472
302	0407	RESHAPE AGGREGATE BASE COURSE	STA	47
430	0043	SUPERPAVE FAA 43	TON	3,812
430	1000	CORED SAMPLE	EA	24
430	5803	PG 58S-28 ASPHALT CEMENT	TON	229
702	0100	MOBILIZATION	L SUM	1
704	0100	FLAGGING	MHR	100
704	1000	TRAFFIC CONTROL SIGNS	UNIT	790
704	1185	PILOT CAR	HR	50
706	0550	BITUMINOUS LABORATORY	EA	1
706	0600	CONTRACTOR'S LABORATORY	EA	1



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Engineering

ESTIMATE OF QUANTITIES

DRWN. BY DTG	CHKD. BY MG	PROJECT NO. 250101
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BASIS OF ESTIMATE

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-3-982(042)	10	1

14th St NE		Sta 20+20 to Sta 21+70				Sta 21+70 to Sta 53+68				Total Quantity
Item Description	Unit	Length	Width	Depth	Quantity	Length	Width	Depth	Quantity	
		LF	LF	IN		LF	LF	IN		
Topsoil - Imported	SY	-	-	-	-	-	-	-	-	-
Salvaged Base Course	TON	150.0	33.0	2.0	57.29	3,198.0	26.0	2.0	962.36	1,019.65
Reshape Aggregate Base Course	STA	150.0	-	-	1.50	3,198.0	-	-	31.98	33.48
Tack Coat @ 0.05 Gal/SY	GAL	150.0	33.0	-	27.50	3,198.0	26.0	-	461.93	489.43
Superpave FAA 43 @ 2 Ton/CY	TON	150.0	33.0	5.0	152.78	3,198.0	26.0	5.0	2,566.30	2,719.07
PG 58S-28 Asphalt Cement @ 6.0%	TON	150.0	33.0	-	9.17	3,198.0	26.0	-	153.98	163.14

14th Ave NE		Sta 37+72 to Sta 50+25				Sta 50+25 to Sta 52+80				Sta 53+06 to Sta 53+82				Total Quantity
Item Description	Unit	Length	Width	Depth	Quantity	Length	Width	Depth	Quantity	Length	Width	Depth	Quantity	
		LF	LF	IN		LF	LF	IN		LF	LF	IN		
Topsoil - Imported	SY	1,253.0	6.0	6.0	835	-	-	-	-	-	-	-	-	835
Salvaged Base Course	TON	1,253.0	26.0	2.0	377.06	255.0	26.0	2.0	76.74	76.0	26.0	2.0	22.87	399.93
Reshape Aggregate Base Course	STA	1,253.0	-	-	12.53	255.0	-	-	2.55	76.0	-	-	0.76	13.29
Tack Coat @ 0.05 Gal/SY	GAL	1,253.0	26.0	-	180.99	255.0	26.0	-	36.83	76.0	26.0	-	10.98	191.97
Superpave FAA 43 @ 2 Ton/CY	TON	1,253.0	26.0	5.0	1,005.49	255.0	26.0	5.0	204.63	76.0	26.0	5.0	60.99	1,066.48
PG 58S-28 Asphalt Cement @ 6.0%	TON	1,253.0	26.0	-	60.33	255.0	26.0	-	12.28	76.0	26.0	-	3.66	63.99

Driveways - 14th St NE		Sta 23+34	Sta 37+59	Sta 49+43	Total Quantity
Item Description	Unit	Quantity	Quantity	Quantity	
Salvaged Base Course	TON	14.00	14.00	24.00	52.00
Tack Coat @ 0.05 Gal/SY	GAL	1.25	1.25	1.25	3.75
Superpave FAA 43 @ 2 Ton/CY	TON	7.00	7.00	12.00	26.00
PG 58S-28 Asphalt Cement @ 6.0%	TON	0.42	0.42	0.72	1.56

HMA Cored Samples					
Location	Spec	A	B	C	Quantity (EA) (A x B x C)
		Distance LF/1000	Lanes or Joints	Lifts	
14th St NE	430.04 I.2.b(2)	3	2	2	12
14th St NE	SSP 4 Longitudinal Joint	3	1	2	6
14th Ave NE	430.04 I.2.b(2)	1	2	2	4
14th Ave NE	SSP 4 Longitudinal Joint	1	1	2	2
				Total	24



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BASIS OF ESTIMATE

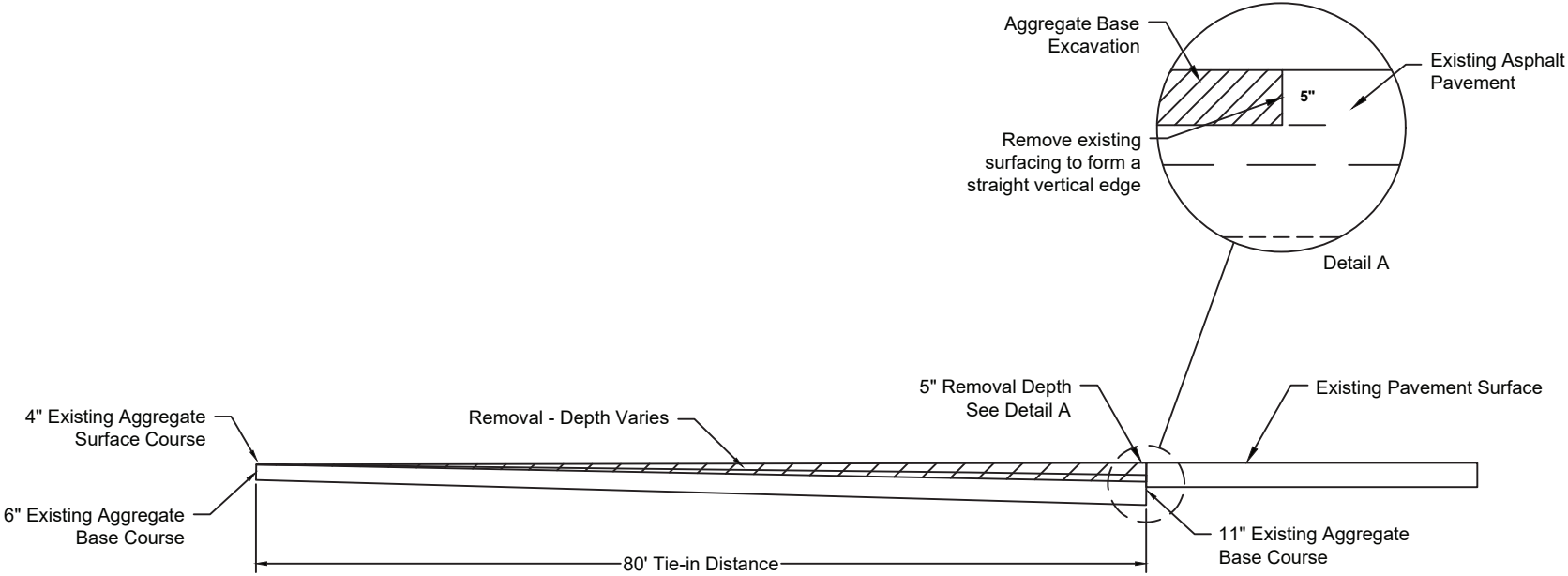
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DTG

CHKD. BY  
MG

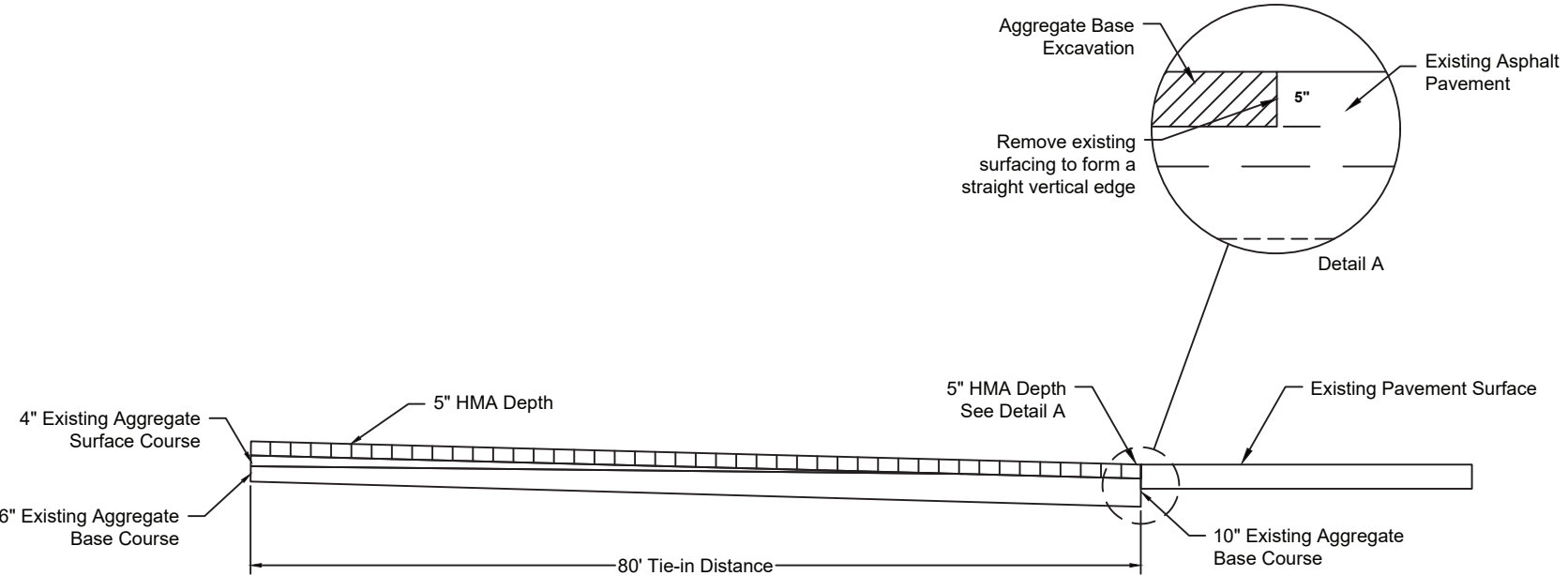
PROJECT NO.  
250101



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-3-982(042)	20	1



**TIE-IN REMOVAL DETAIL**  
14th St NE - Sta 20+20  
14th Ave NE - Sta 37+72



**ASPHALT TIE-IN DETAIL**  
14th St NE - Sta 20+20  
14th Ave NE - Sta 37+72



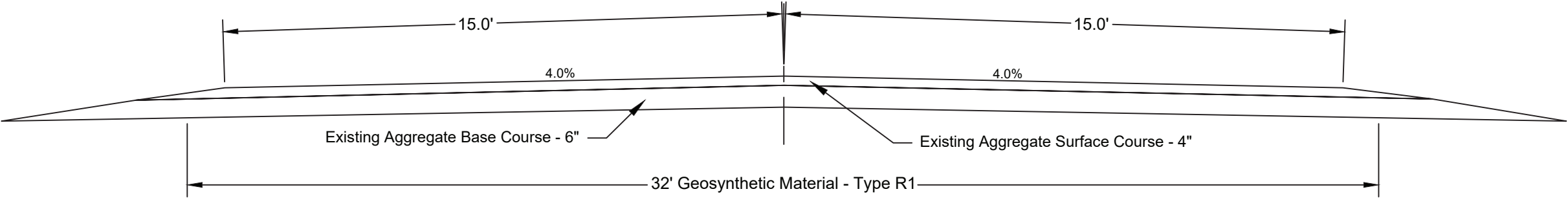
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**GENERAL DETAILS**

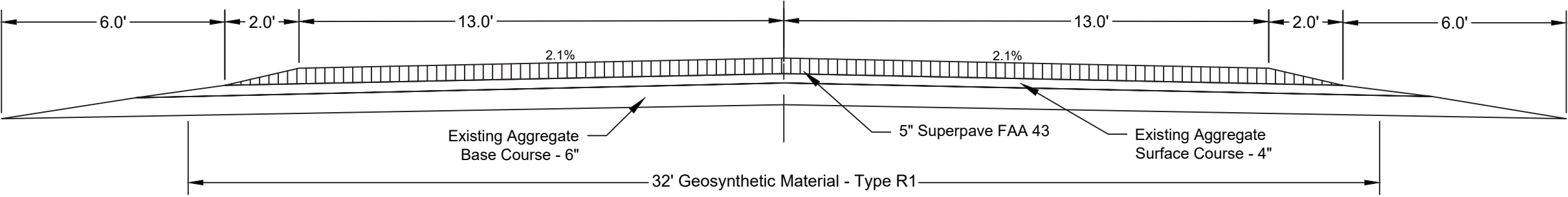
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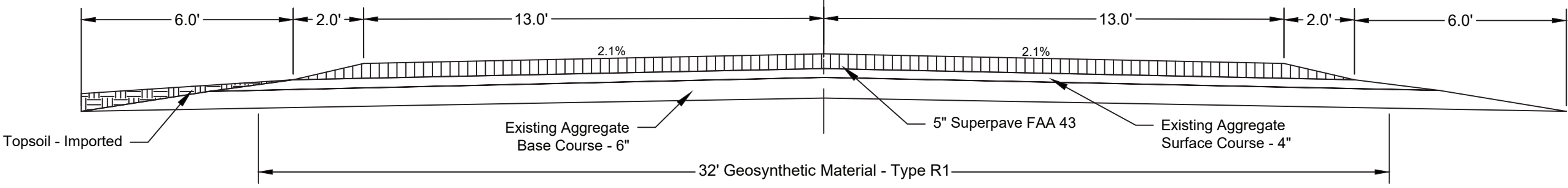
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	ND	SU-3-982(042)	30	1



**EXISTING TYPICAL SECTION**  
14th St NE - Sta 20+20 to 53+68  
14th Ave NE - Sta 37+72 to 53+82



**PROPOSED TYPICAL SECTION**  
14th St NE - Sta 20+20 to 53+68  
14th Ave NE - Sta 50+25 to 53+82



**PROPOSED TYPICAL SECTION**  
14th Ave NE - Sta 37+72 to 50+25

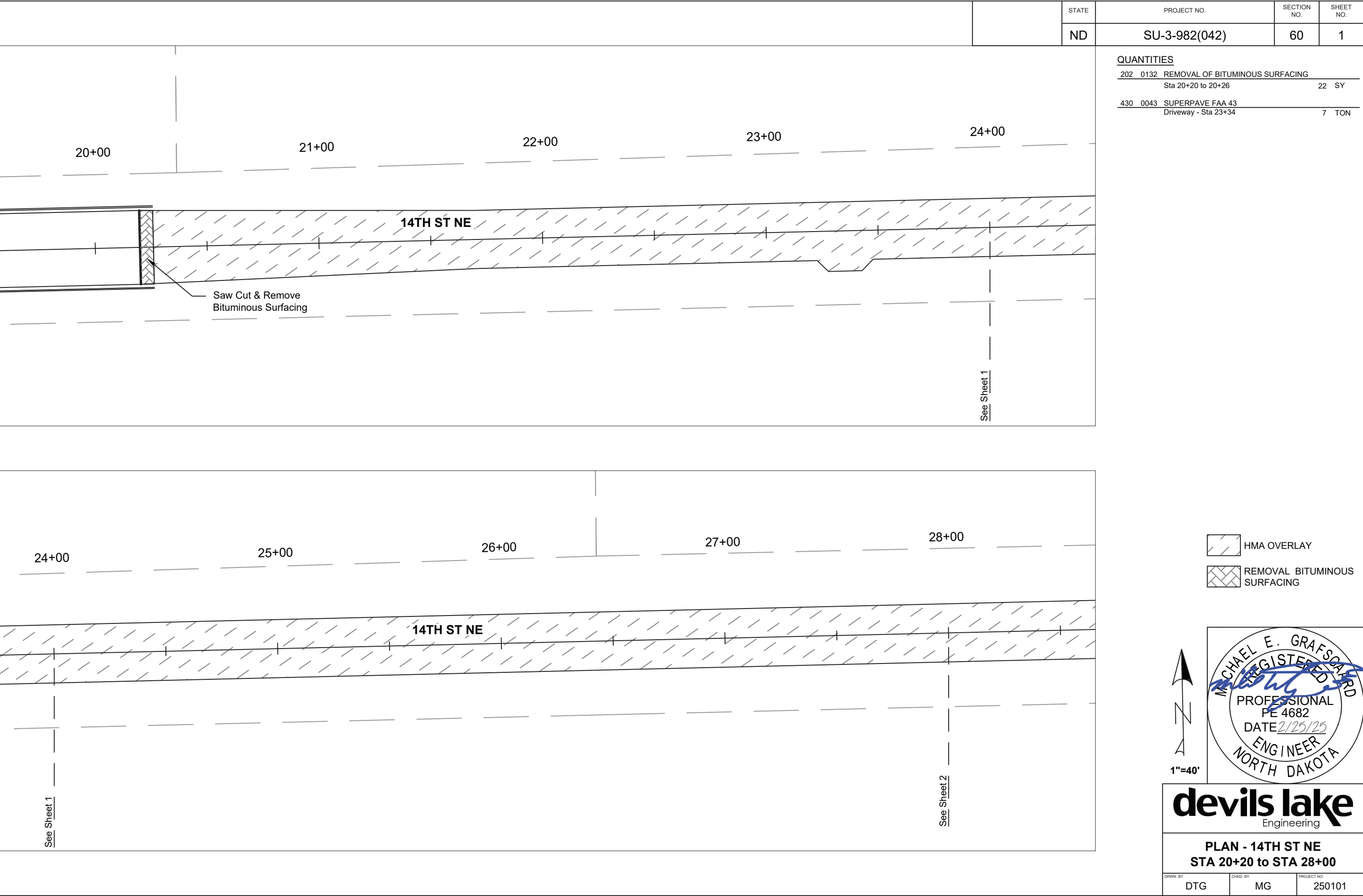


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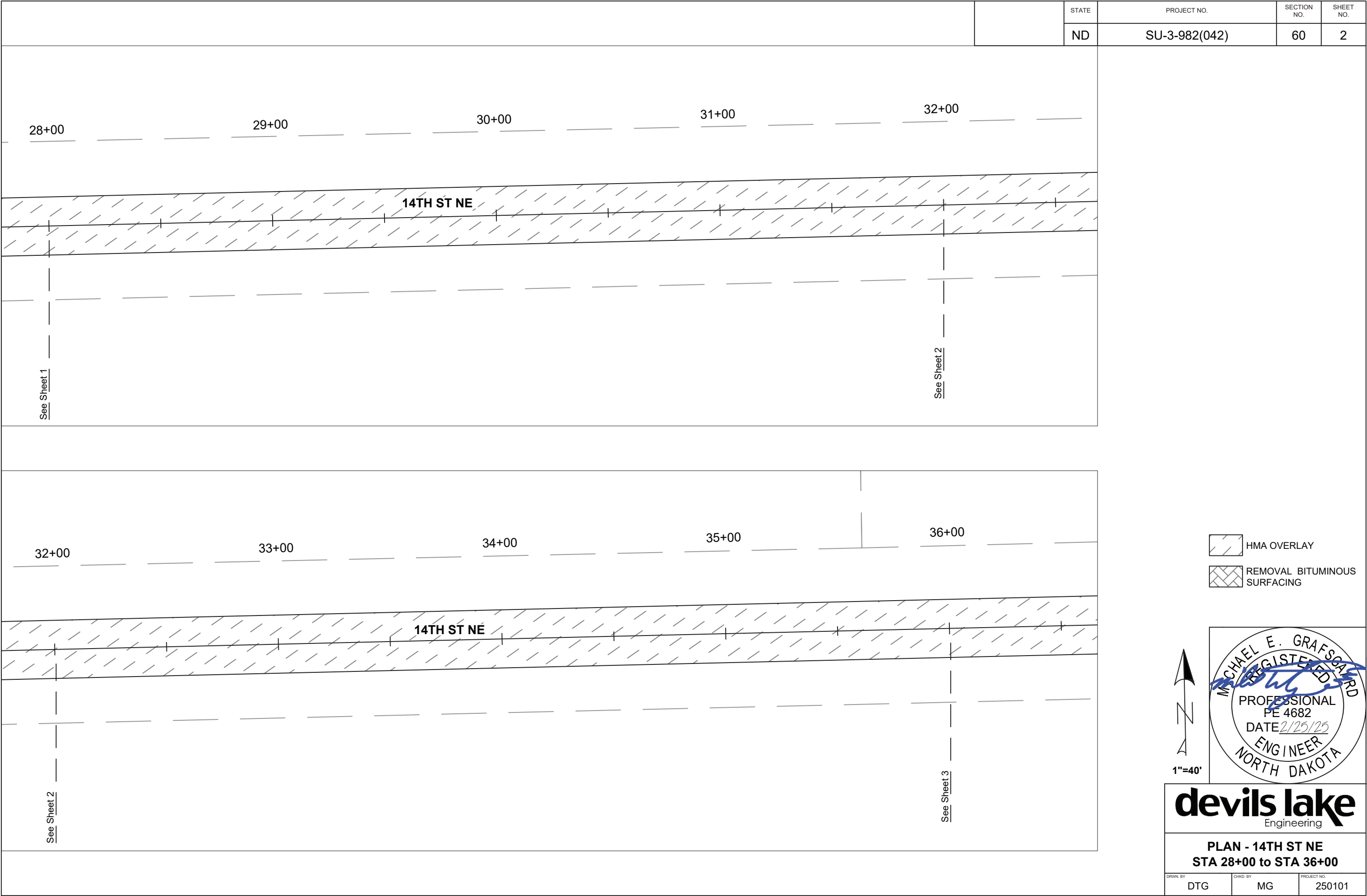
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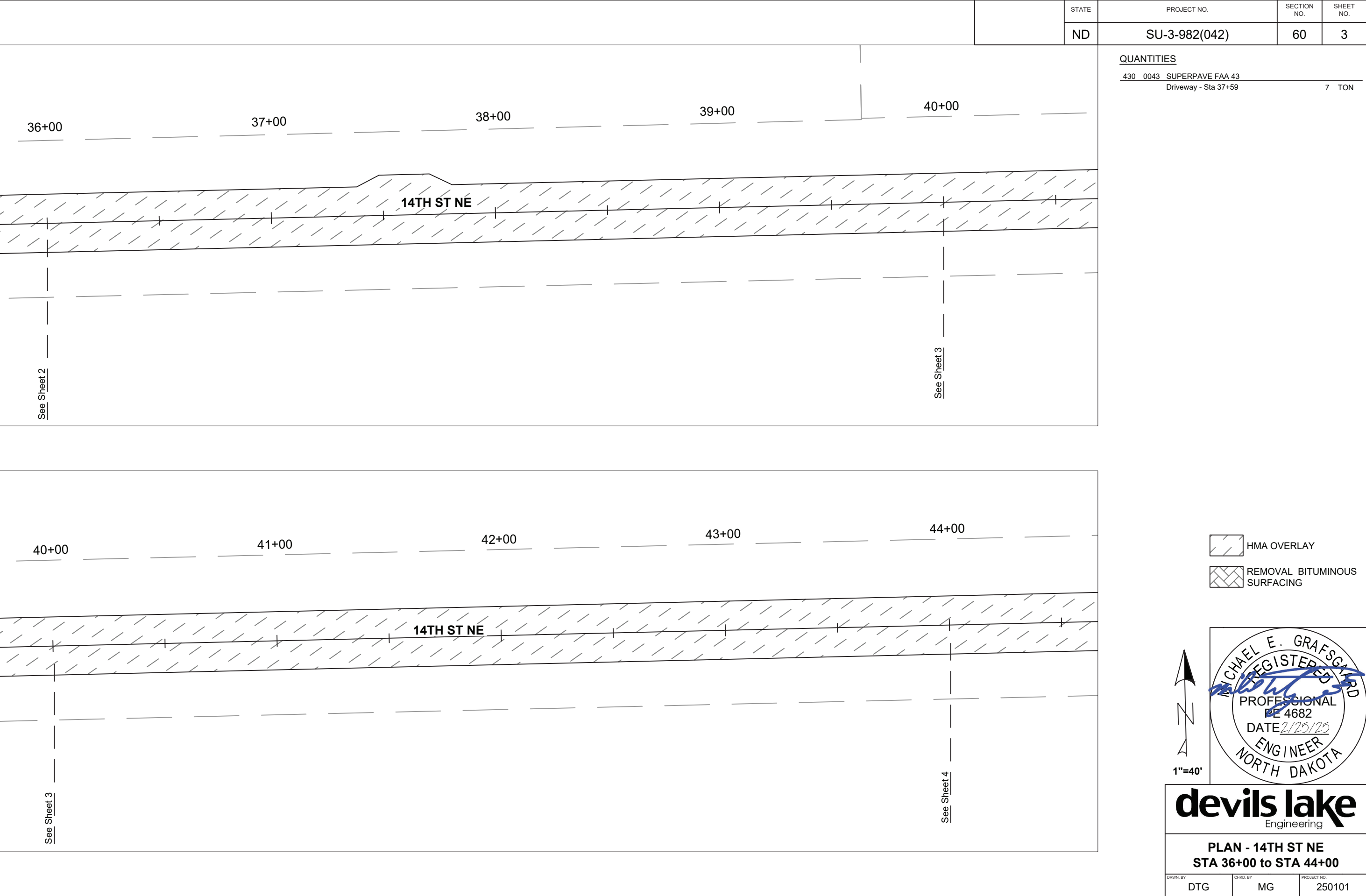
DRWN. BY	CHKD. BY	PROJECT NO.
DTG	MG	250101



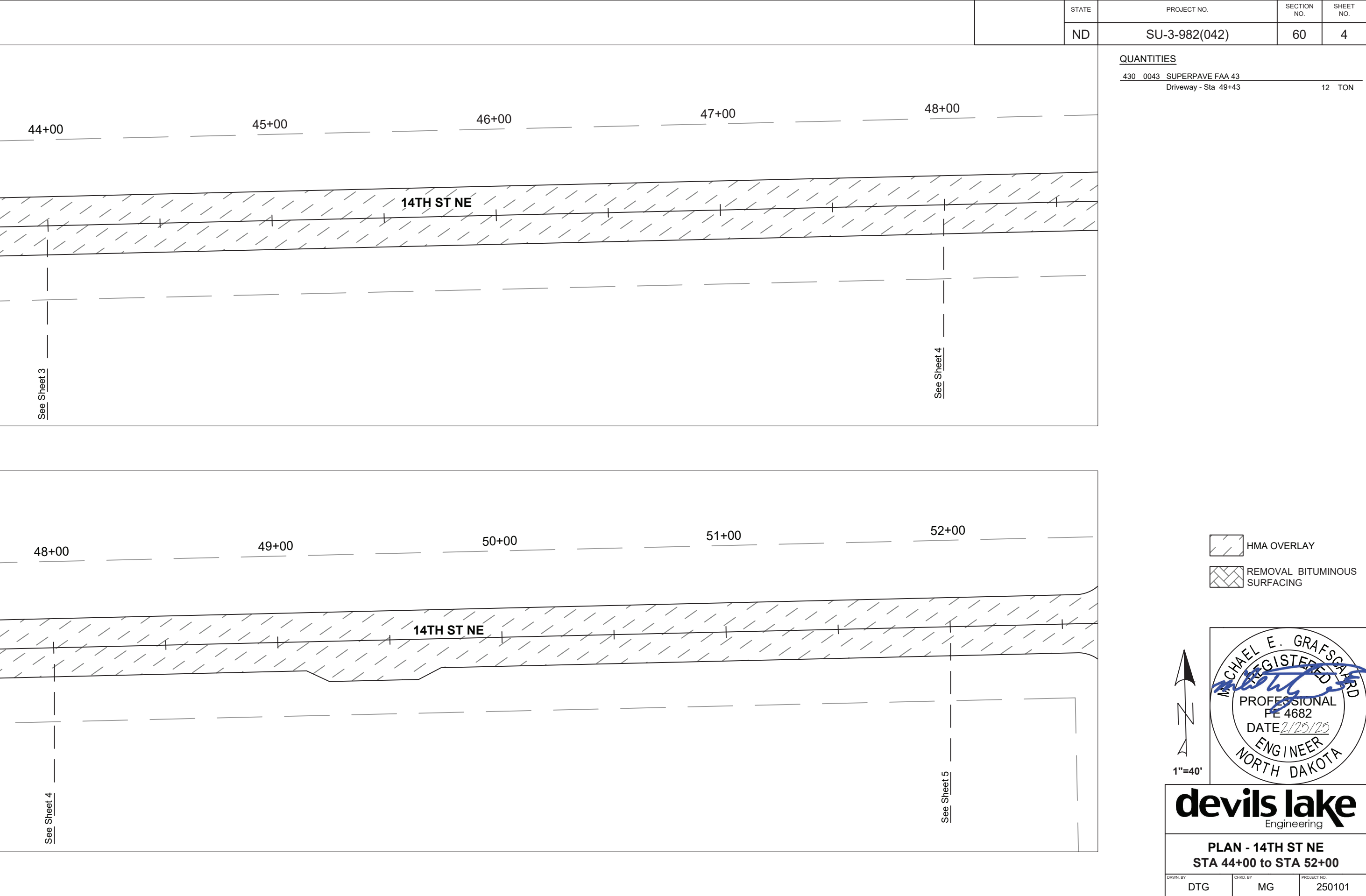


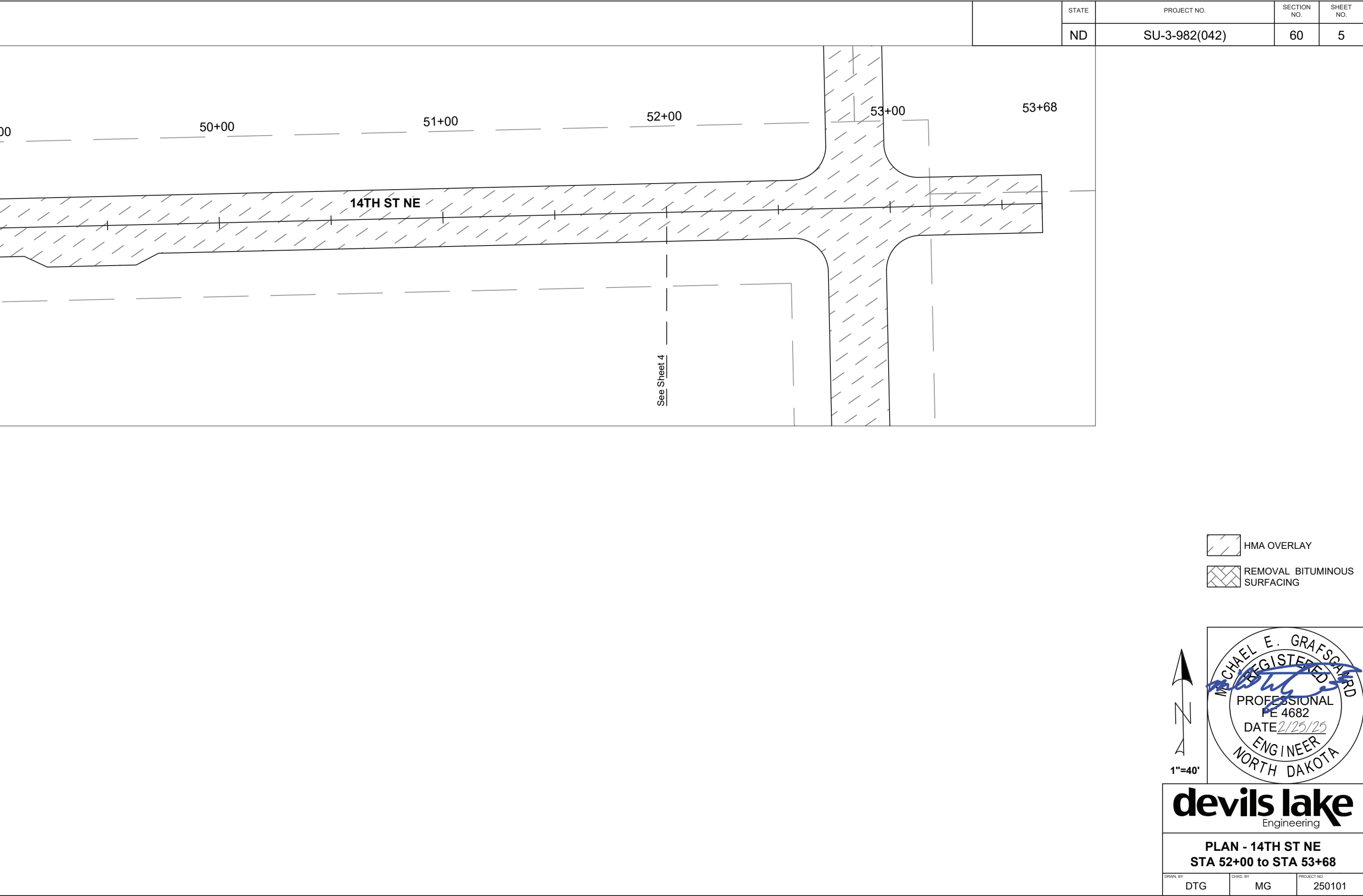




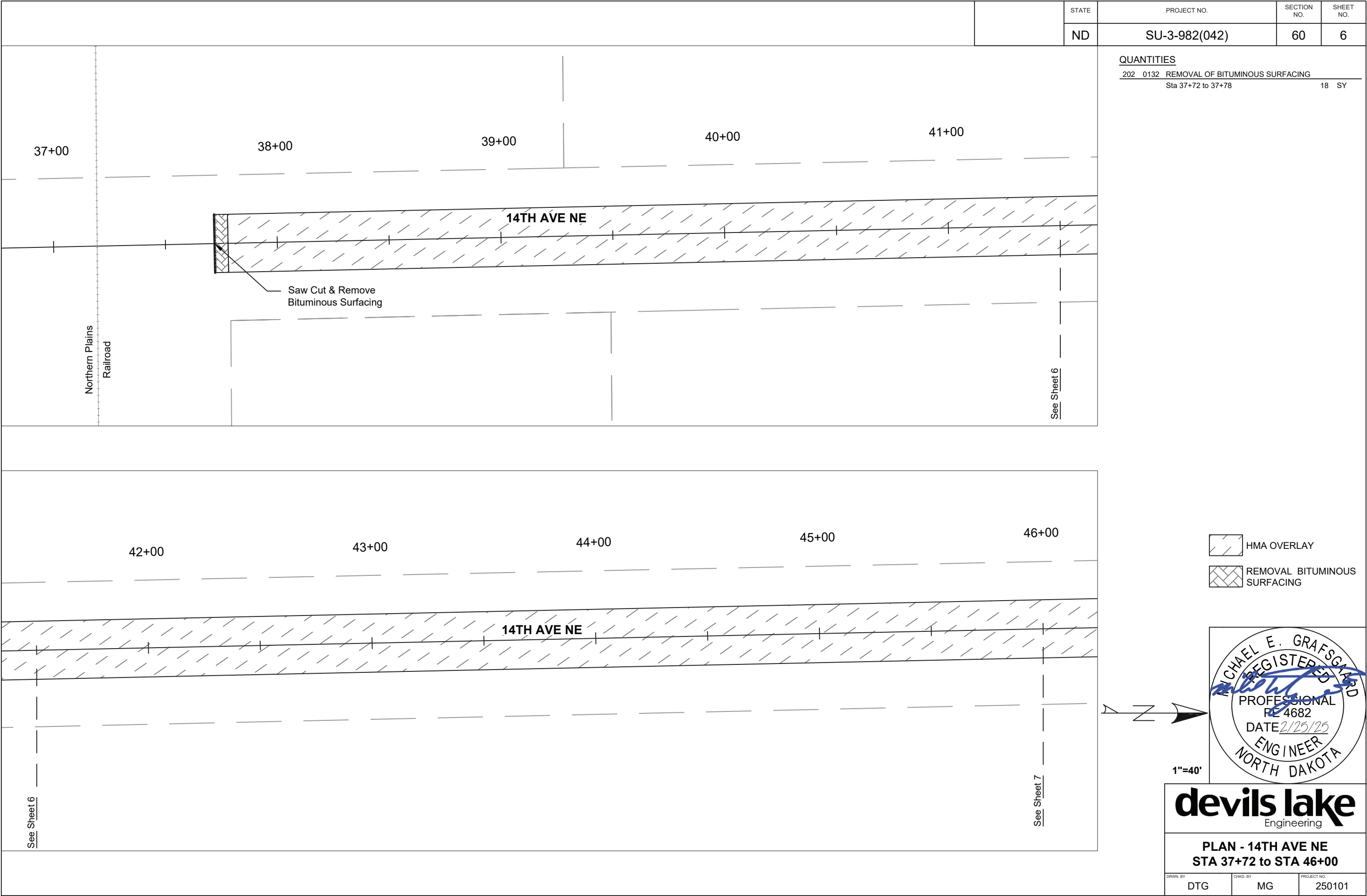


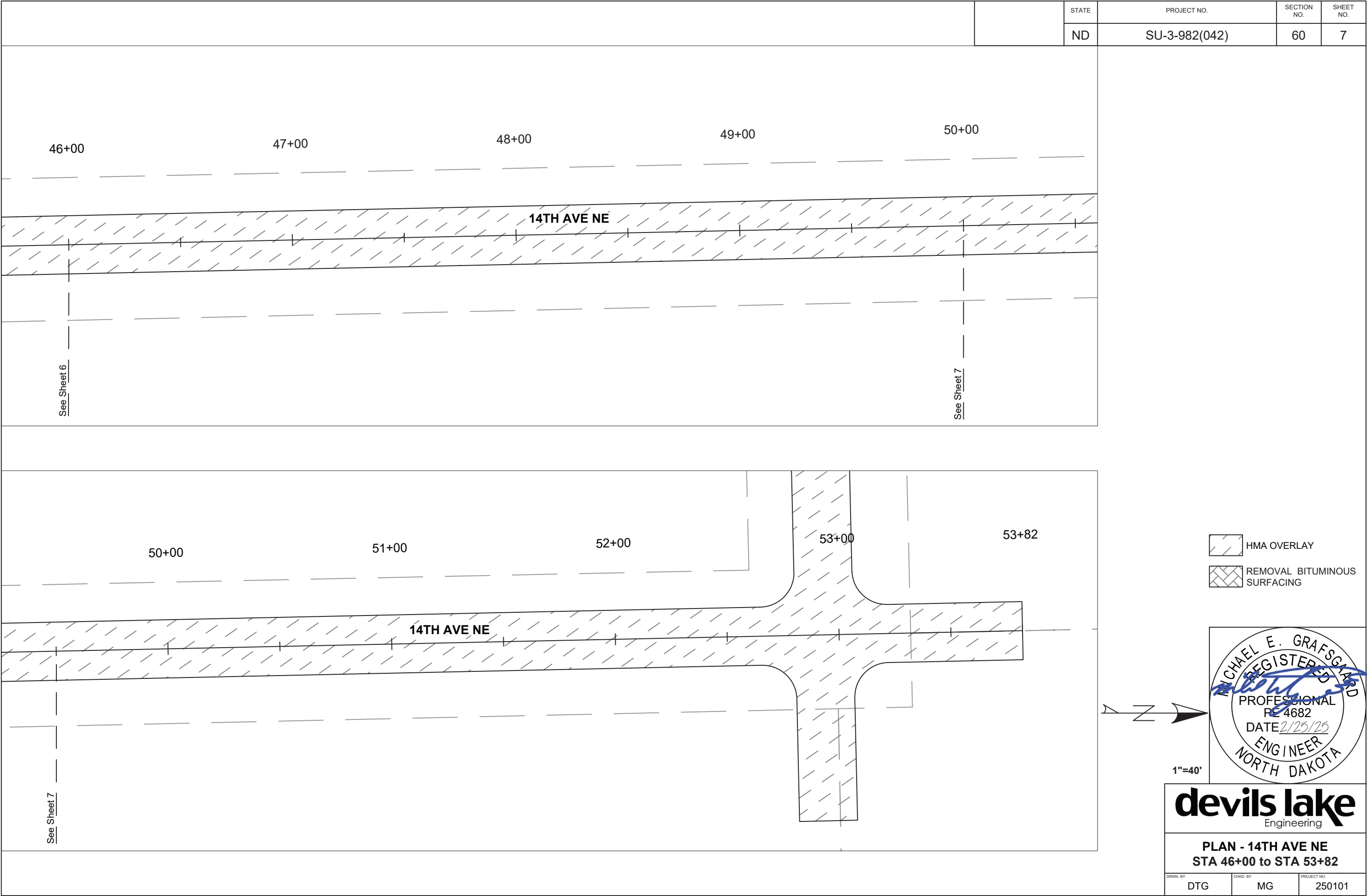












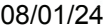








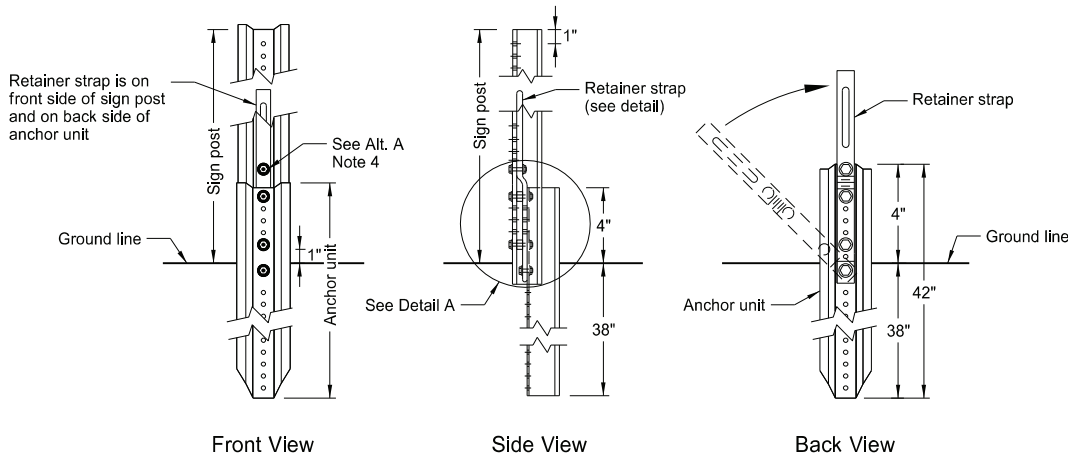
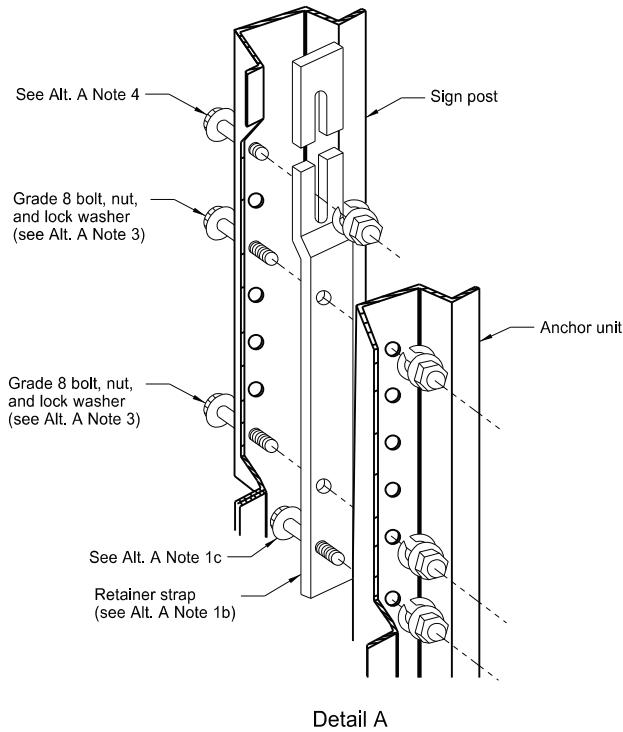




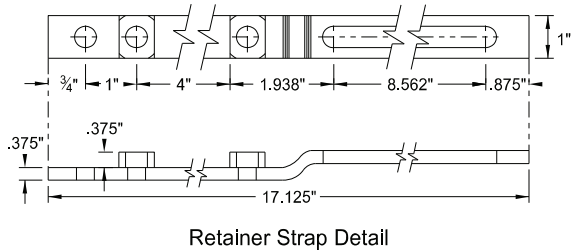
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

U-Channel Post

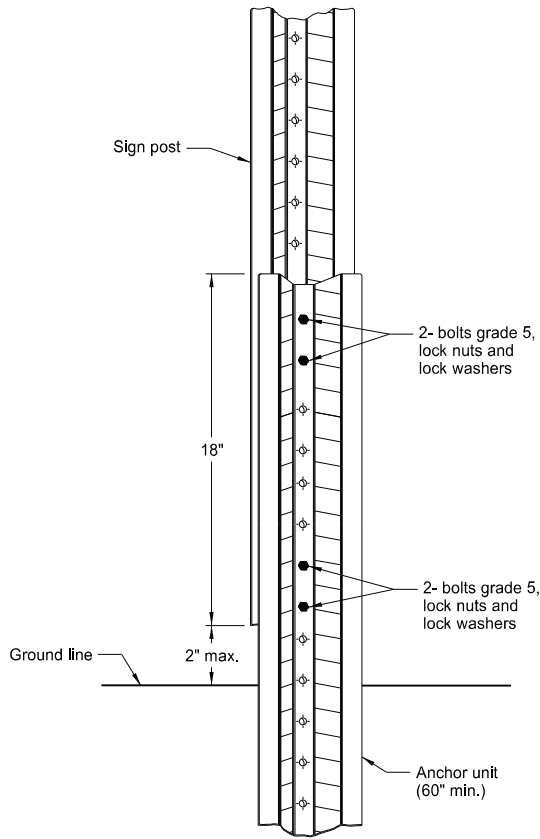


Breakaway U-Channel Detail  
Alternate A  
Install a maximum of 2 posts within 7'.

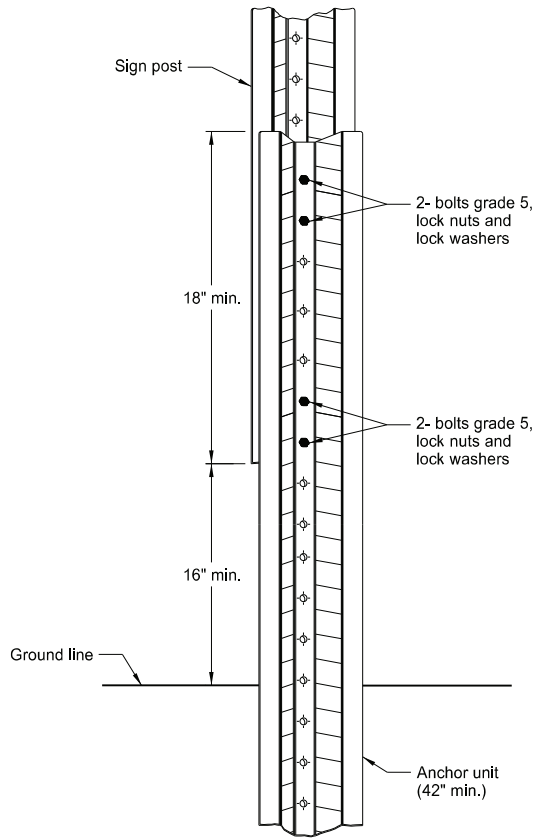


Alternate A Steps of Installation:

- Drive anchor unit to within 12" of ground level.
  - Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
  - Assemble strap to back of anchor unit using  $\frac{5}{16}$ "x2" bolt, lock washer and nut.
  - Rotate strap 90° to left.
- Drive anchor unit to 4" above ground.
  - Rotate strap to vertical position.
- Place  $\frac{5}{16}$ "x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.
  - Alternately tighten two connector bolts.
- Complete assembly by tightening  $\frac{5}{16}$ "x2" bolt (this fastens sign post to retainer strap).
- 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.



Breakaway U-Channel Splice Detail  
Alternate B  
(2.5 and 3 lb/ft)  
Install a maximum of 3 posts within 7'.



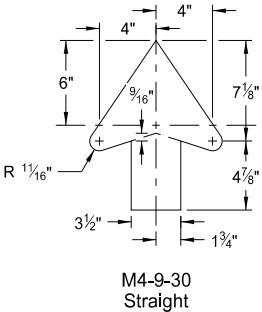
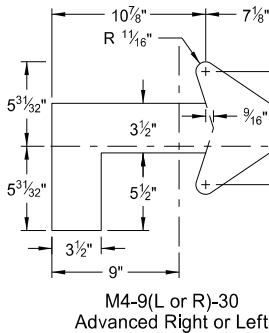
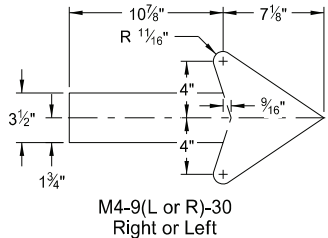
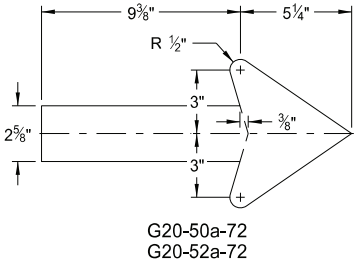
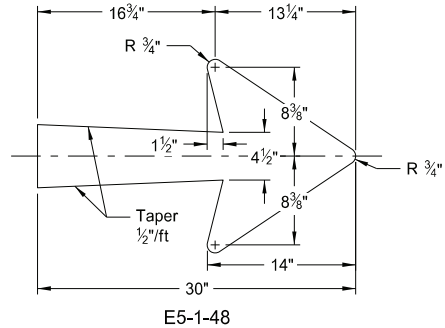
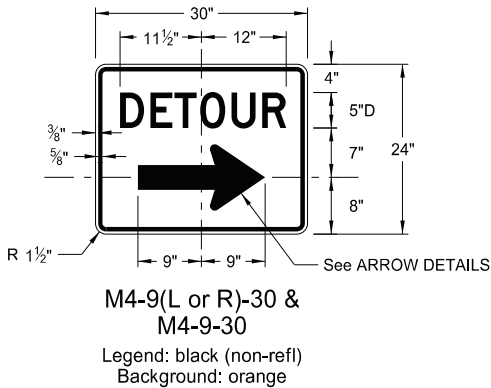
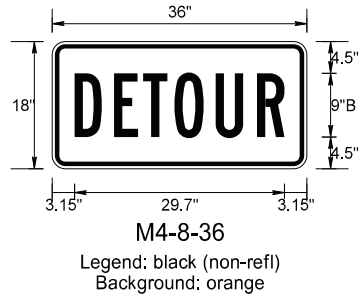
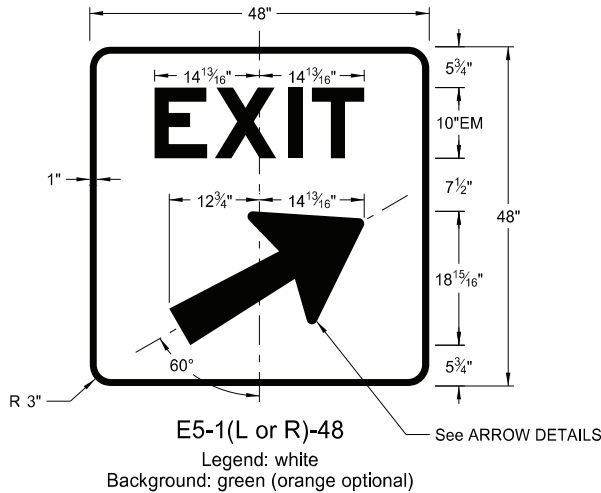
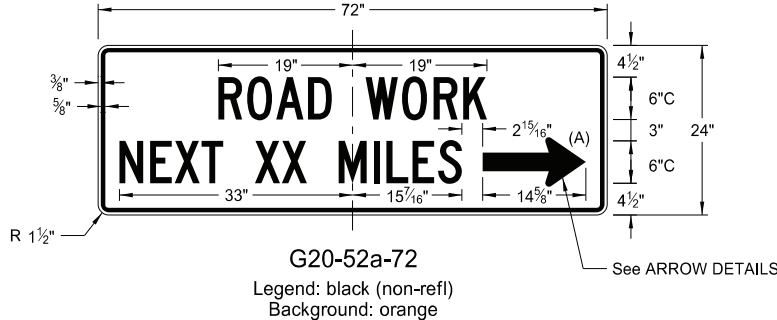
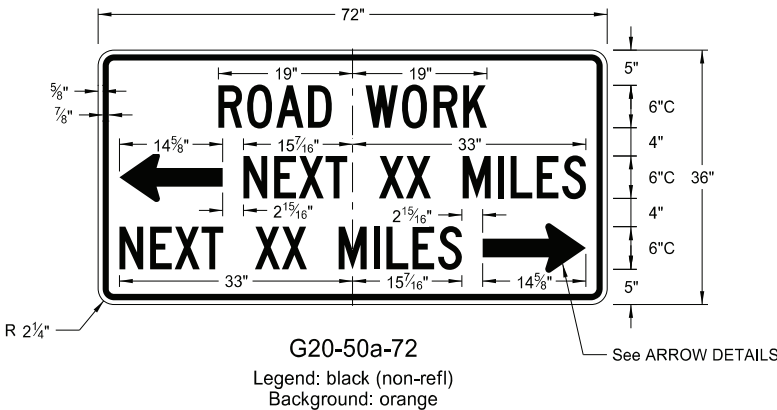
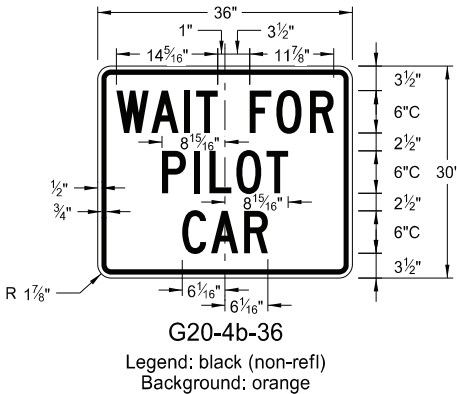
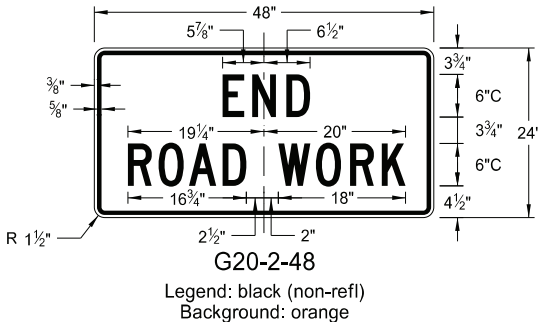
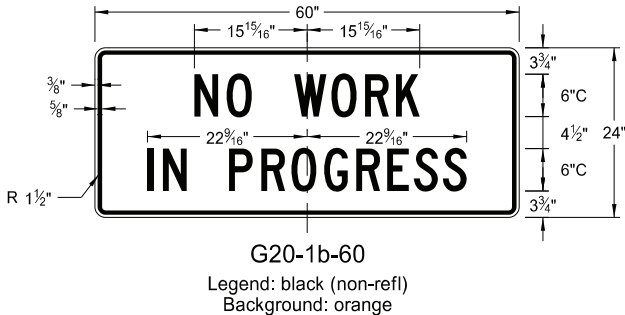
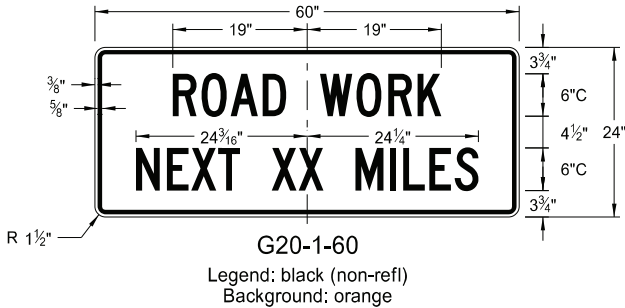
Breakaway U-Channel Splice Detail  
Alternate C  
(2.5 and 3 lb/ft)  
Install a maximum of 3 posts within 7'.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature



08/01/24

CONSTRUCTION SIGN DETAILS  
TERMINAL AND GUIDE SIGNS



ARROW DETAILS

NOTES:

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Added sign & background color
10-03-19	New Design Engineer PE Stamp
8-01-24	Electronic Stamp/Signature

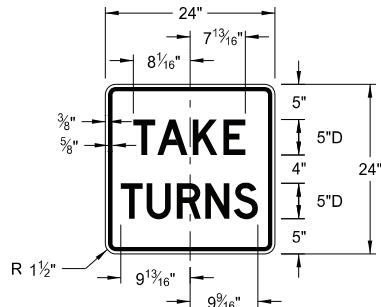


08/01/24

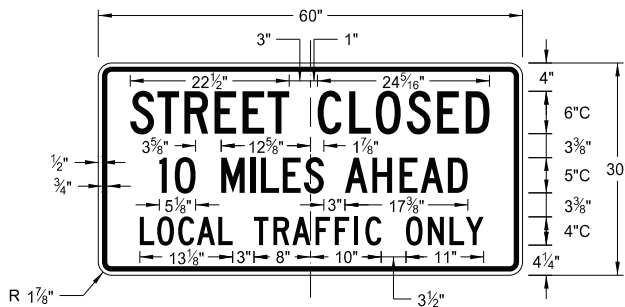


CONSTRUCTION SIGN DETAILS  
REGULATORY SIGNS

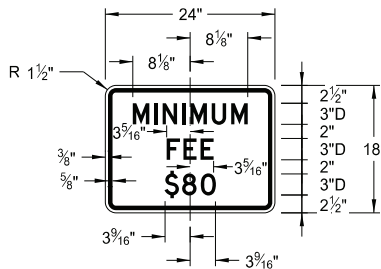
D-704-10



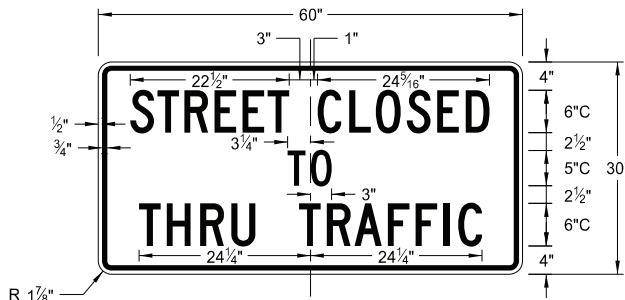
R1-50P-24  
Legend: black (non-refl)  
Background: white



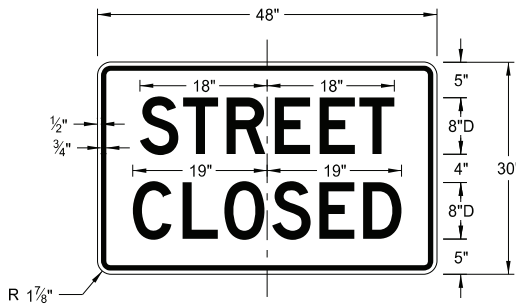
R11-3c-60  
Legend: black (non-refl)  
Background: white



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



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



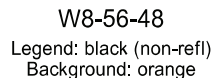
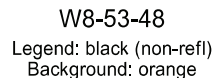
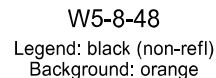
R11-2a-48  
Legend: black (non-refl)  
Background: white

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
8-01-24	Electronic Stamp/Signature



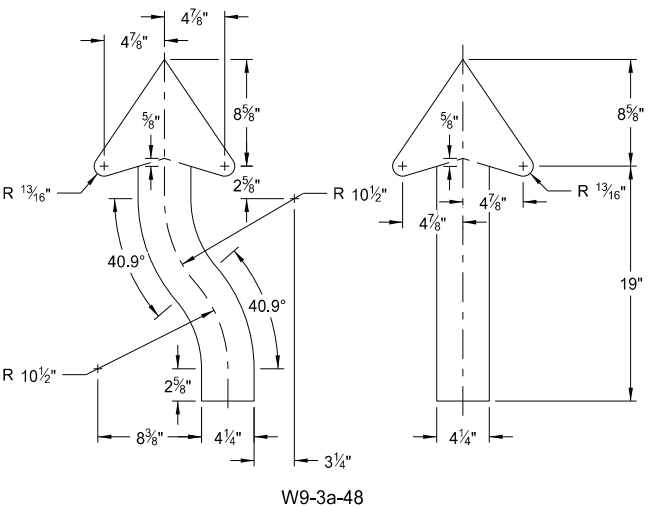
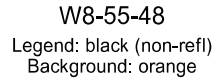
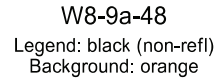
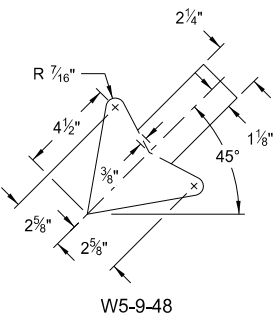
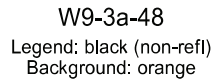
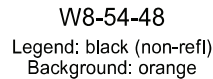
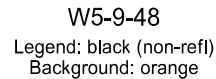
08/01/24

D-704-11



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



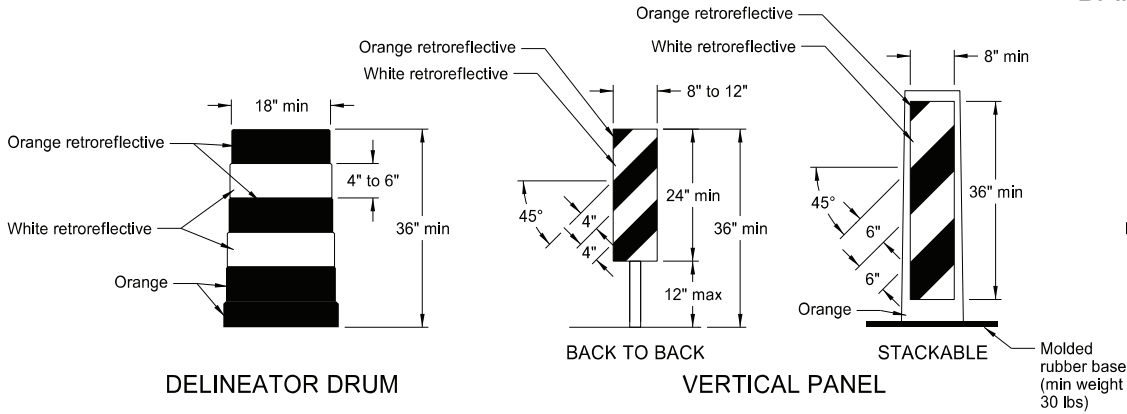
## ARROW DETAILS

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number
5-31-18	Revised sign and arrow details
10-03-19	New Design Engineer PE Stamp
8-01-24	Electronic Stamp/Signature



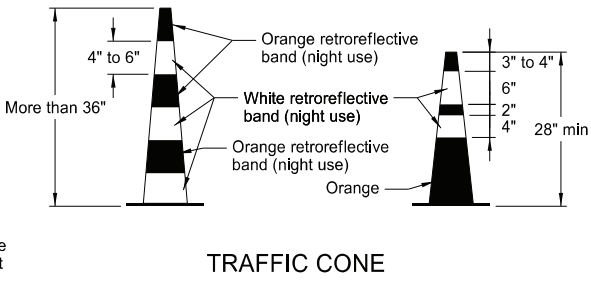
08/01/24

BARRICADE AND CHANNELIZING DEVICE DETAILS

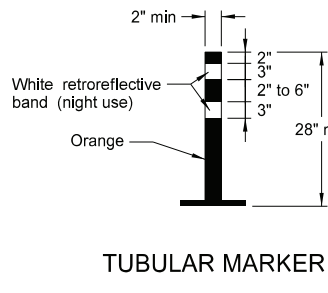


Provide horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide for drum markings. Use a minimum of two orange and two white stripes with the top stripe being orange for each drum. Do not exceed 3" nonretroreflectORIZED spaces between the horizontal orange and white stripes. Avoid placement of stripes on drum ribs or indentations. Use closed top drums that will not allow collection of debris. Do not place ballast on the top of drum.

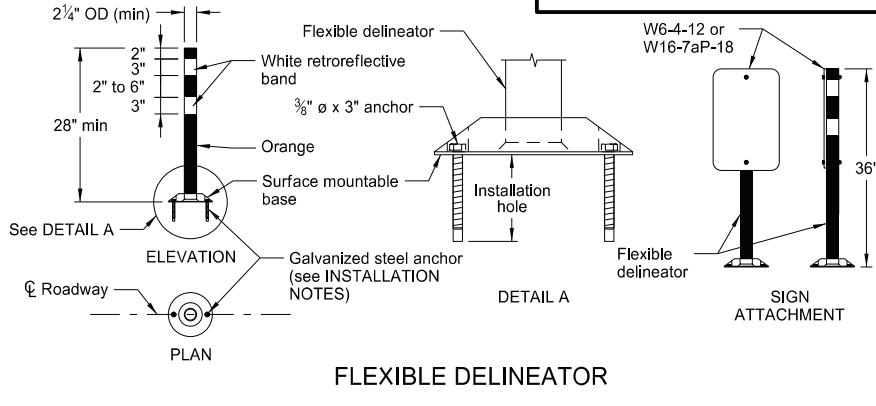
Provide alternating orange and white retroreflective stripes, sloping downward in direction vehicular traffic is to pass. Place retroreflective sheeting on both sides of panel with a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective material on the vertical panel is 36 inches or more, use a stripe width of 6 inches.



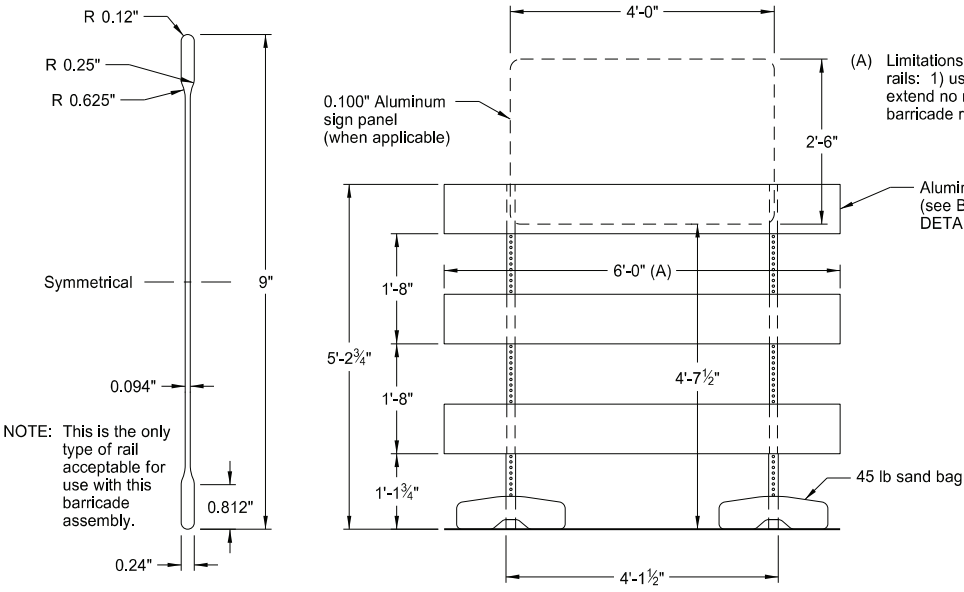
Provide retroreflectORIZATION of cones more than 36" in height by alternating orange and white retroreflective stripes. Use a minimum of two orange and two white stripes for each cone with the top stripe being orange. Use maximum 3" nonretroreflectORIZED space between the orange and white stripes.



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



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

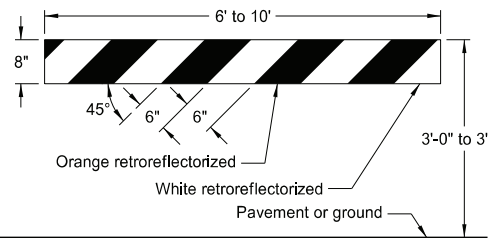


BARRICADE BLADE DETAIL

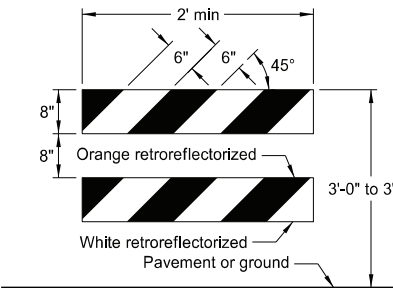
ELEVATION VIEW

BARRICADE ASSEMBLY DETAIL  
(Aluminum Barricade Rails)

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

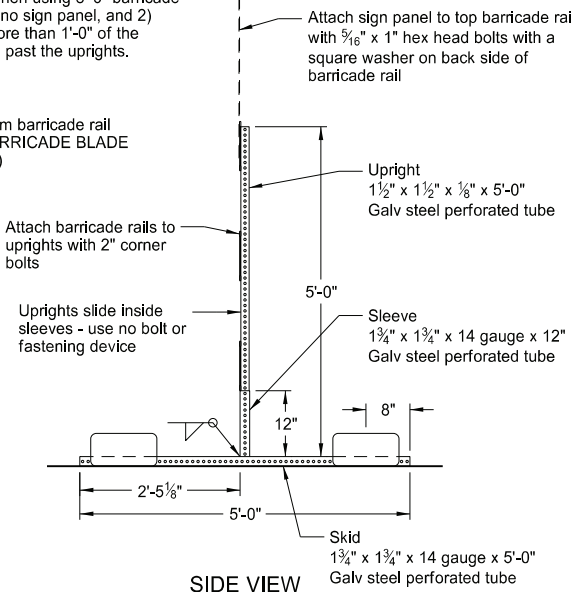


TYPE I BARRICADE



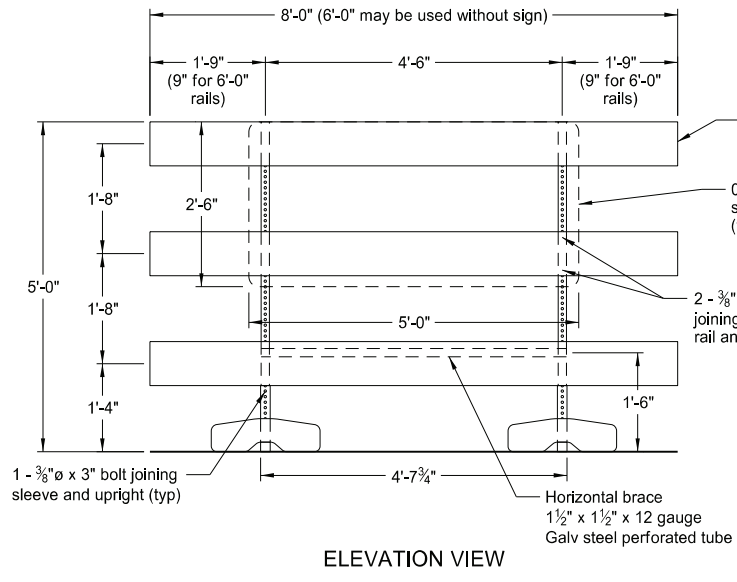
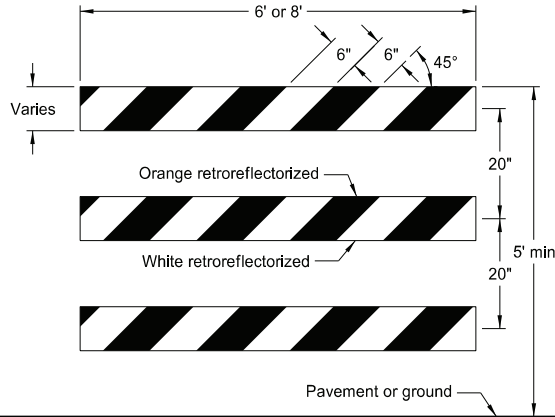
TYPE II BARRICADE

BARRICADE RAIL DETAILS



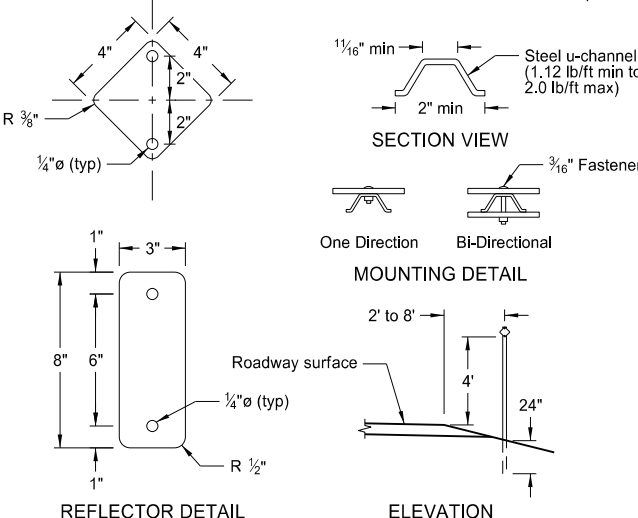
SIDE VIEW

TYPE III BARRICADE



ELEVATION VIEW

BARRICADE ASSEMBLY DETAIL  
(Wood or Plastic Rails)



REFLECTOR DETAIL

ELEVATION

DELINEATORS

MINIMUM BALLAST  
(For each side of barricade support)

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

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

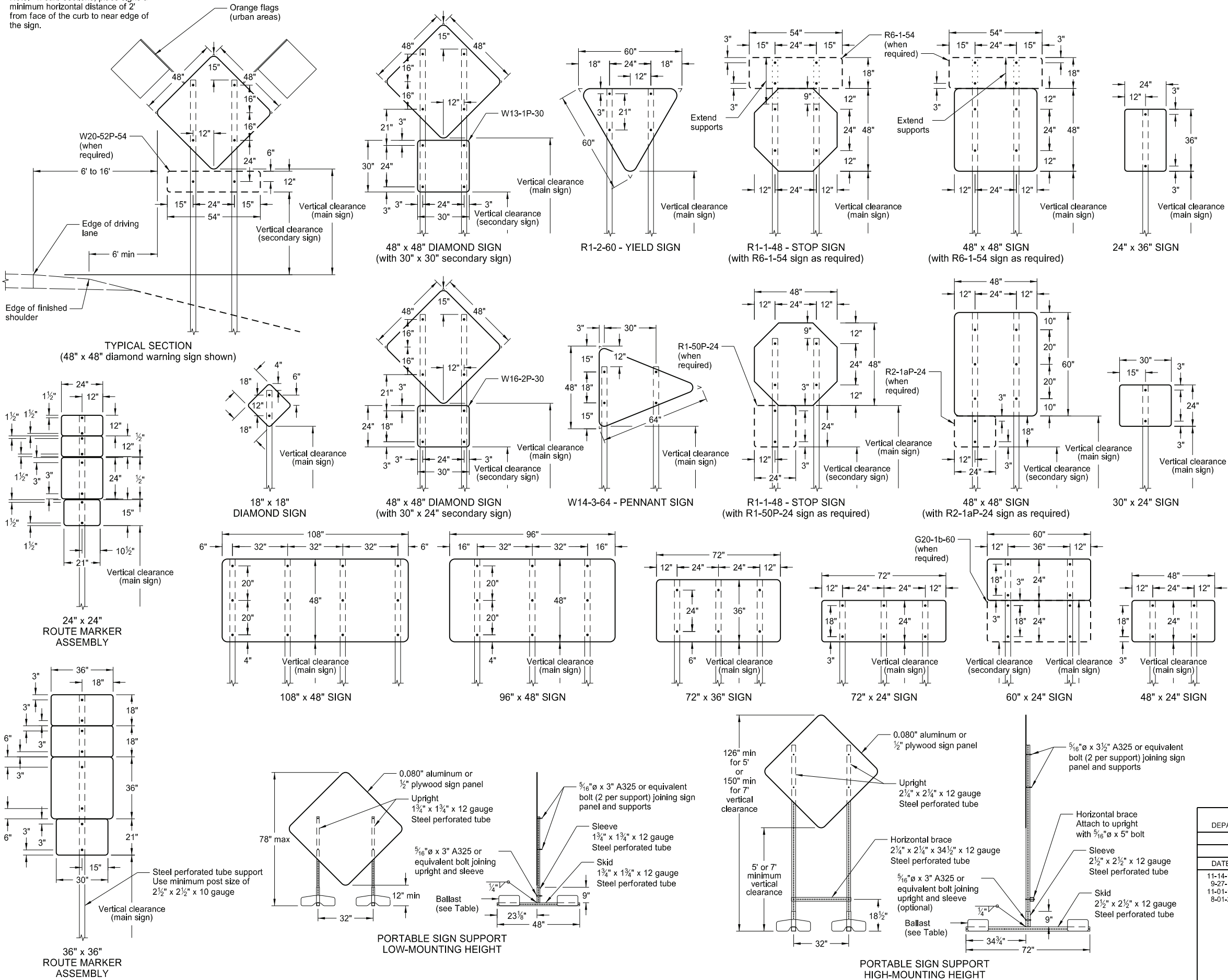
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
11-01-19	Revised details for Flexible Delineator
8-01-24	Electronic Stamp/Signature





CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

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



NOTES:

1. Sign Supports: Galvanize or paint supports. Minimum post sizes are 2.5 lb/ft u-channel or 2" x 2" x 12 gauge steel perforated tube, except where noted. When installing signs on u-channel, minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes based on a wind speed of 55 MPH.  
  
Place signs over 50 square feet on 2½" x 2½" perforated tube supports as a minimum.  
  
Do not attach guy wires to sign supports. Attach wind beams behind sign panels when used with u-posts.
2. Sign Panels: Provide sign panels made of 0.100" aluminum, ½" plywood, or other approved material, except where noted. Punch all holes round for ⅜" bolts.
3. Alternate Messages: Install and remove alternate message signs on reflectorized plate (without borders) as required. (i.e. "Left" and "Right" message on lane closure sign)
4. Route Marker Auxiliary Signs: Provide route marker auxiliary signs, such as the cardinal direction and directional arrows, with a background and legend that match the route marker they are used with:

Interstate - white legend on blue background  
Interstate Business Loop - white legend on green background  
US and State - black legend on white background  
County - yellow legend on blue background

5. Vertical Clearance: Install signs with a vertical clearance of 5'-0" (see TYPICAL SECTION.) In areas where parking or pedestrian movements are likely or the view of the sign may be obstructed, install signs with a vertical clearance of 7'-0" from the top of the curb or from the near edge of the driving lane in absence of a curb.

The vertical clearance to secondary signs is 1'-0" less than the vertical clearance stated above.

Provide a minimum clearance of 7'-0" from the ground at the post for signs with an area exceeding 50 square feet.

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

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

Restrict signs mounted on portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT details to a maximum surface area of 16 square feet.

MINIMUM BALLAST  
(For each side of sign support base)

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

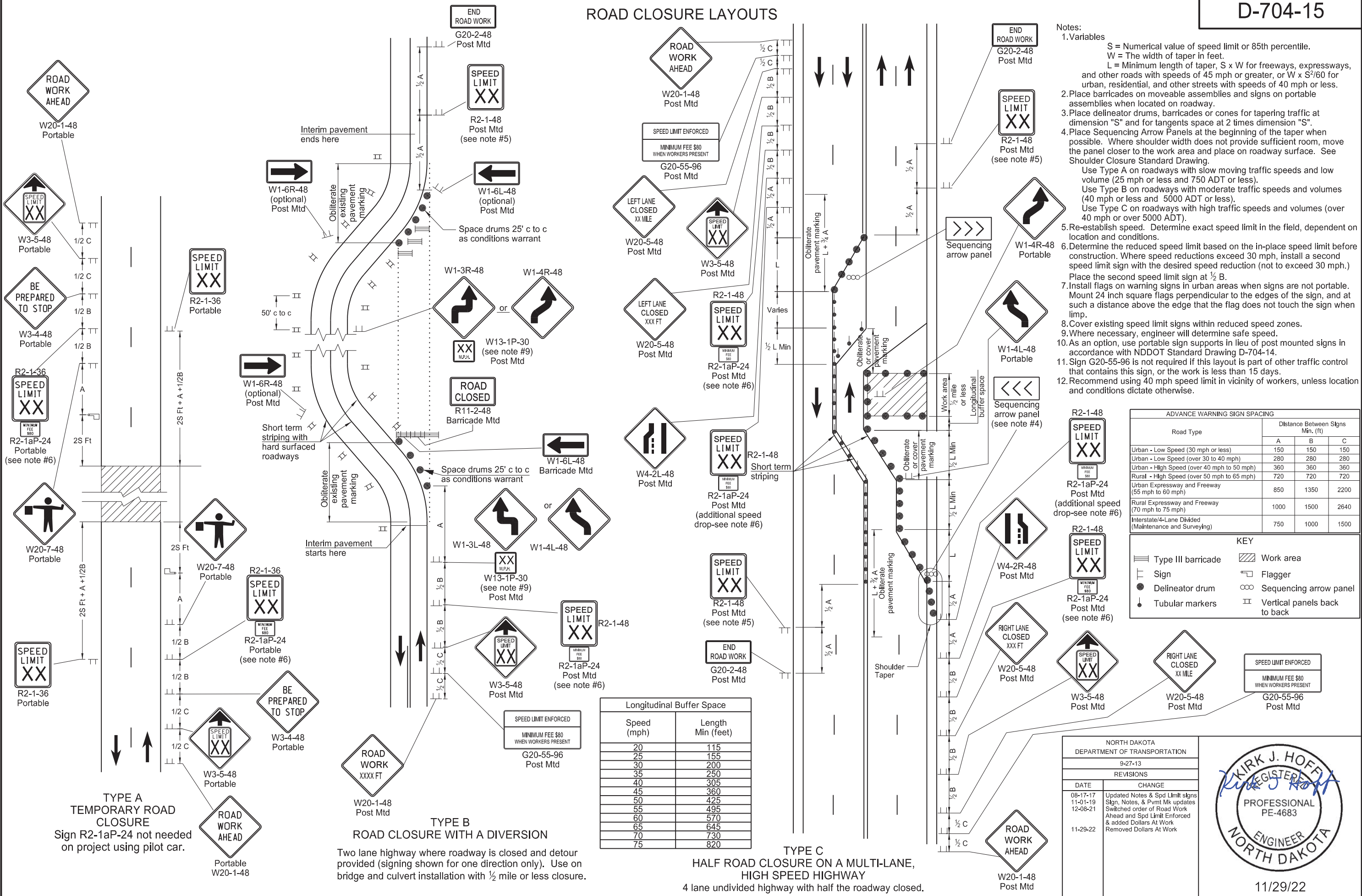
Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of skids.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-4-13	
REVISIONS	
DATE	CHANGE
11-14-13	Revised Note 6
9-27-17	Updated to active voice
11-01-19	Revised 60"x24" sign detail
8-01-24	Electronic Stamp/Signature



08/01/24

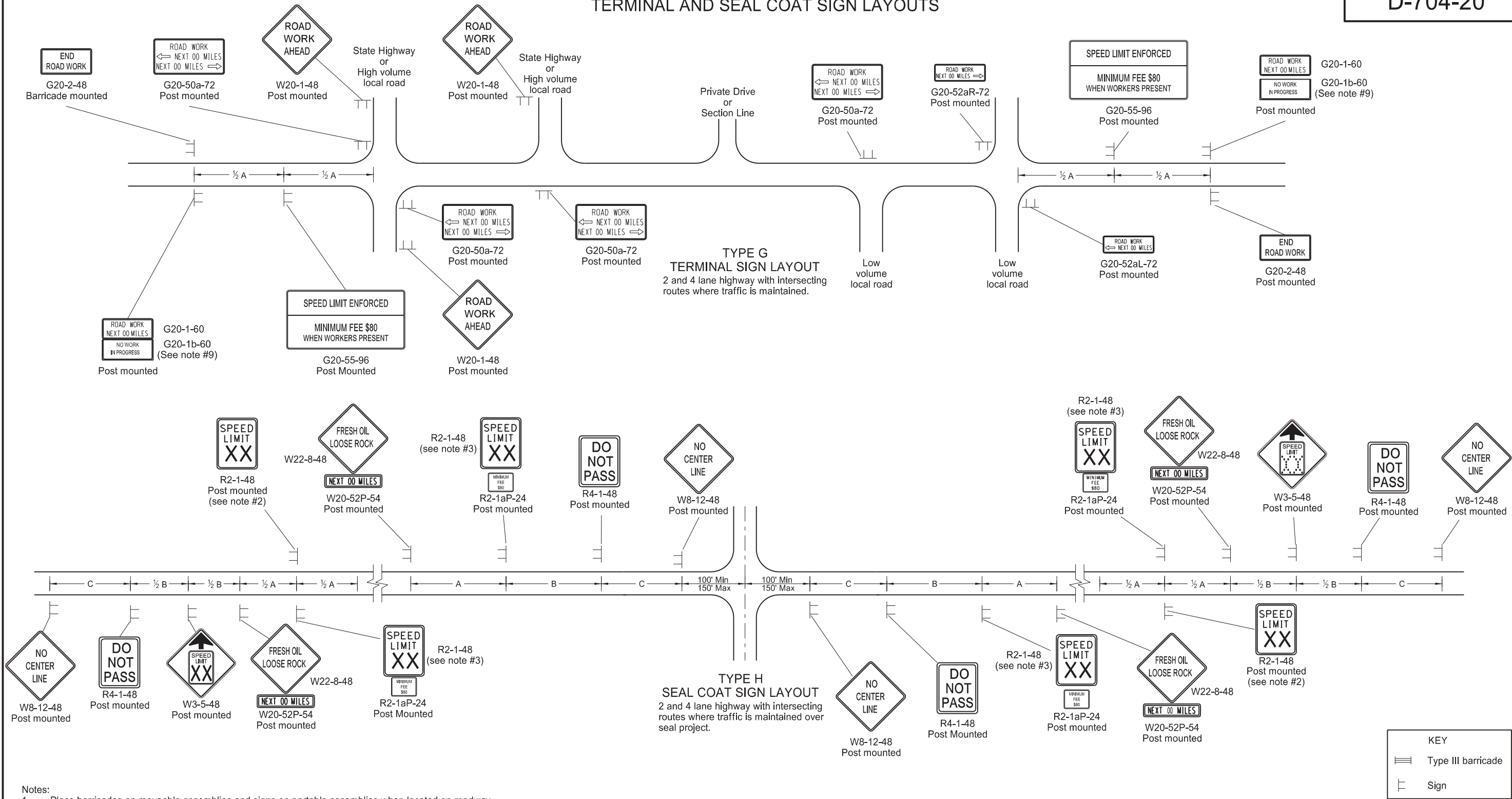
ROAD CLOSURE LAYOUTS





TERMINAL AND SEAL COAT SIGN LAYOUTS

D-704-20



Notes:

- 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  $\frac{1}{2}$  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 this layout is part of other traffic control that contains this sign, 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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
08-17-17	Updated notes & sign numbers
11-01-19	Updated note & sign
12-08-21	Switched order of Road Work and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work

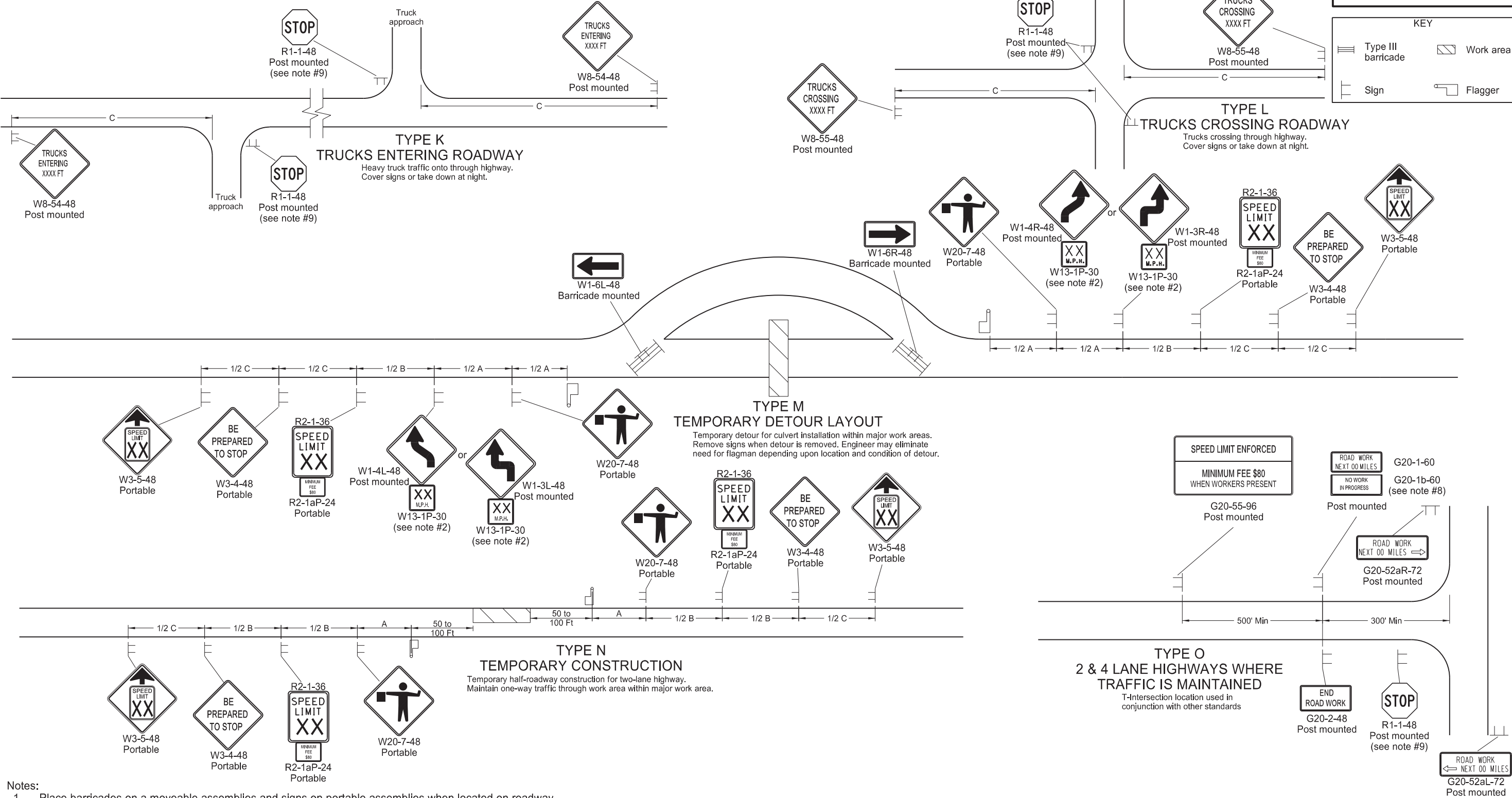


11/29/22



CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

D-704-22



Notes:

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

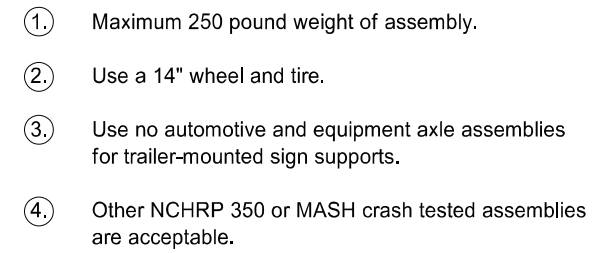
ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway 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
08-17-17	Update notes & sign numbers
11-01-19	Revised sign numbers & note 7
12-09-21	Added Speed Limit Enforced and Dollars At Work signs
11-29-22	Removed Dollars At Work



11/29/22

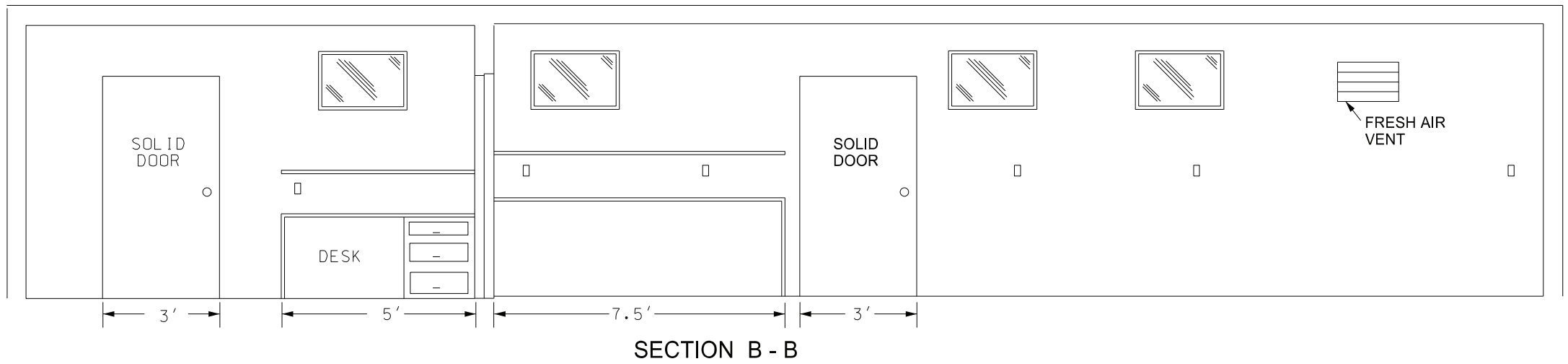
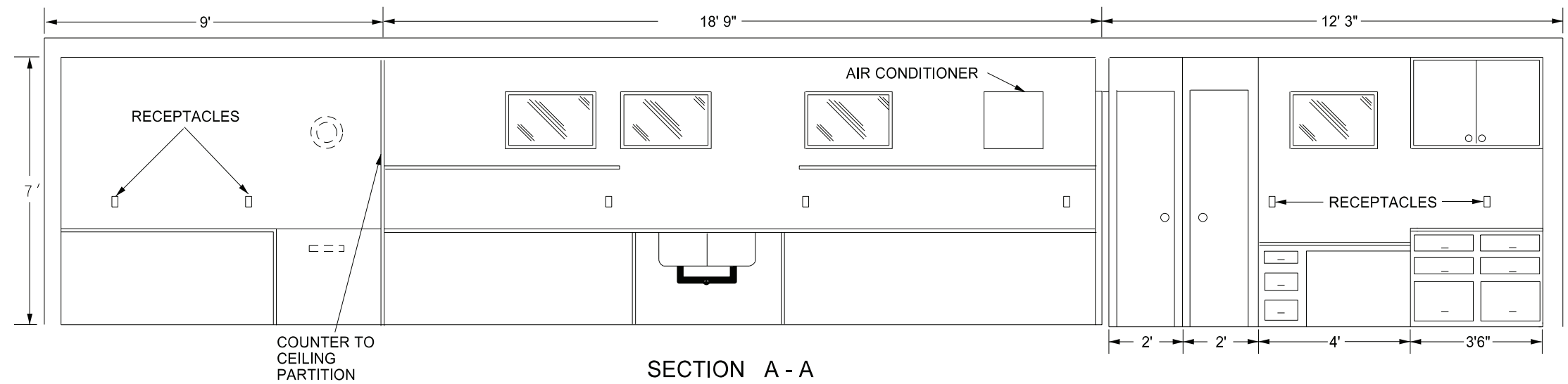
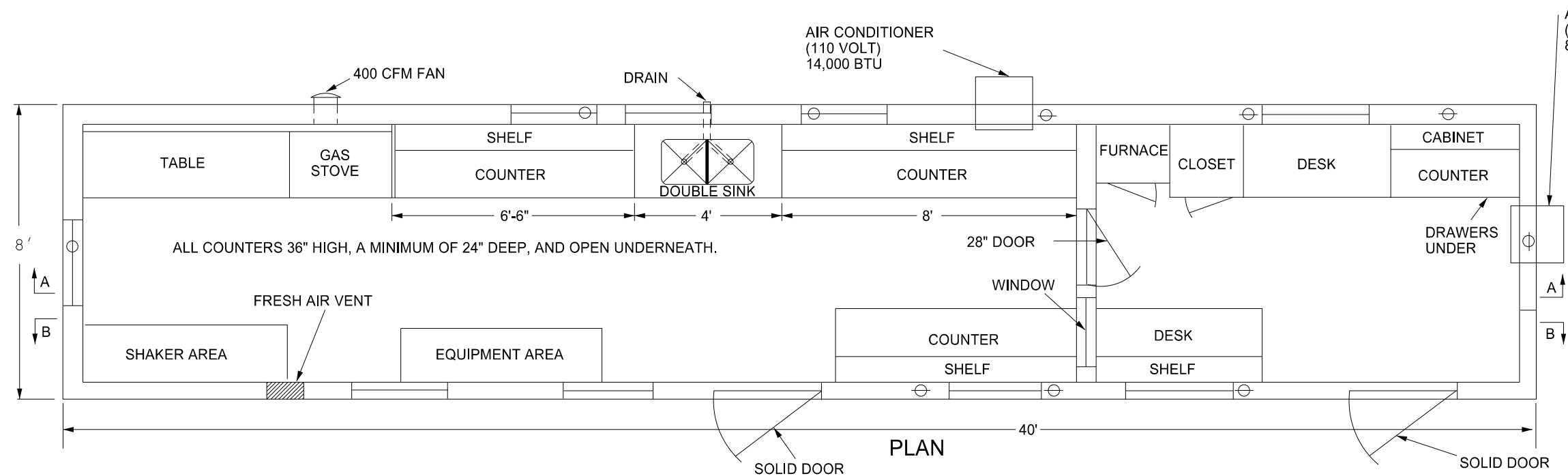
D-704-50



The seal is circular with a double-line border. The outer ring contains the text "KIRK J. HOFF" at the top and "NORTH DAKOTA" at the bottom. The inner circle contains the text "REGISTERED" at the top, "PROFESSIONAL" in the middle, and "PE-4683" at the bottom. A handwritten signature "Kirk J Hoff" is written across the center of the seal. Below the seal, the date "12 02 2020" is printed.

BITUMINOUS LABORATORY

D-706-1



- Provide a laboratory with the following:
1. A 1'x1' shelf at 36" above the regular countertop.
  2. Double compartment stainless steel sink, with each compartment a minimum of 16"x14"x10" deep. Provide water service lines made of copper or plastic and a diameter of ½ inch.
  3. An exhaust fan capable of removing inside air at a rate of 400 CFM.
  4. Fresh air vent hinged to open or close manually.
  5. 24" x 48" table capable of holding a 200 lb masonry saw with a minimum clearance of 36" above the table.
  6. A water supply tank with a capacity of 500 gallons and a 20 gallon capacity pressure tank on the pump.
  7. Heavy duty type locks, latches, and hinges for doors made to withstand the intense use in service.
  8. A wall between the office and the work area properly insulated to prevent the transmission of heat and noise.
  9. The steel cable tie downs and ground anchors at each corner of the lab.
  10. Electrical service entrance wired for 100 amps and separate circuits for air conditioners. Space convenience outlets in counter areas a minimum of four feet apart.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		This document was originally issued and sealed by  Kirk J Hoff,  Registration Number  PE- 4683,  on 08/27/19 and the original document is stored at the  North Dakota Department  of Transportation
10-03-13		
REVISIONS		
DATE	CHANGE	
07-30-14	Changed standard's title and revised notes.	
01-11-16	Revised notes.	
08-27-19	New Design Engineer PE Stamp	