

09/05/25

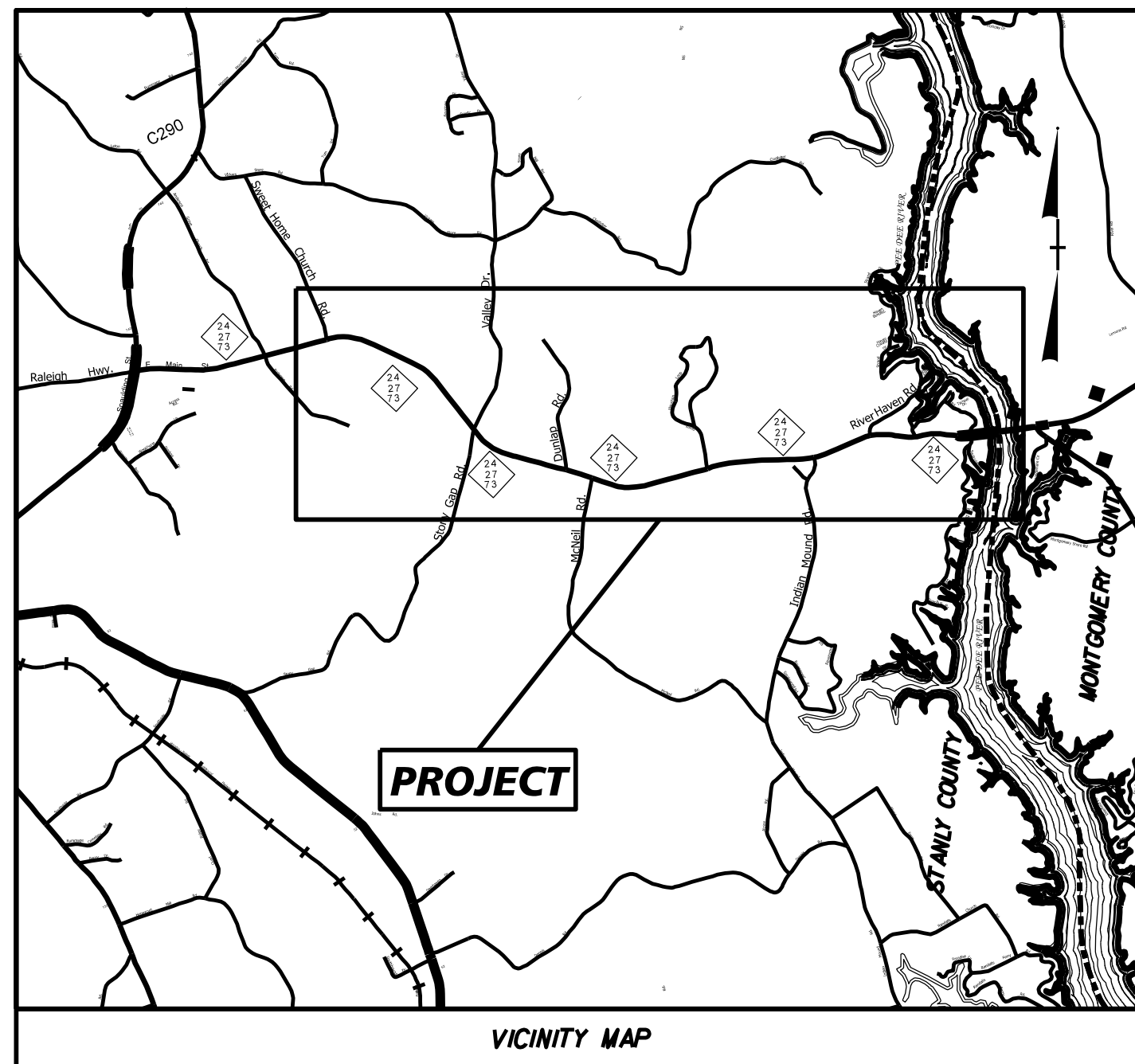
TIP PROJECT: R-2530BA

CONTRACT: DJ00581

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

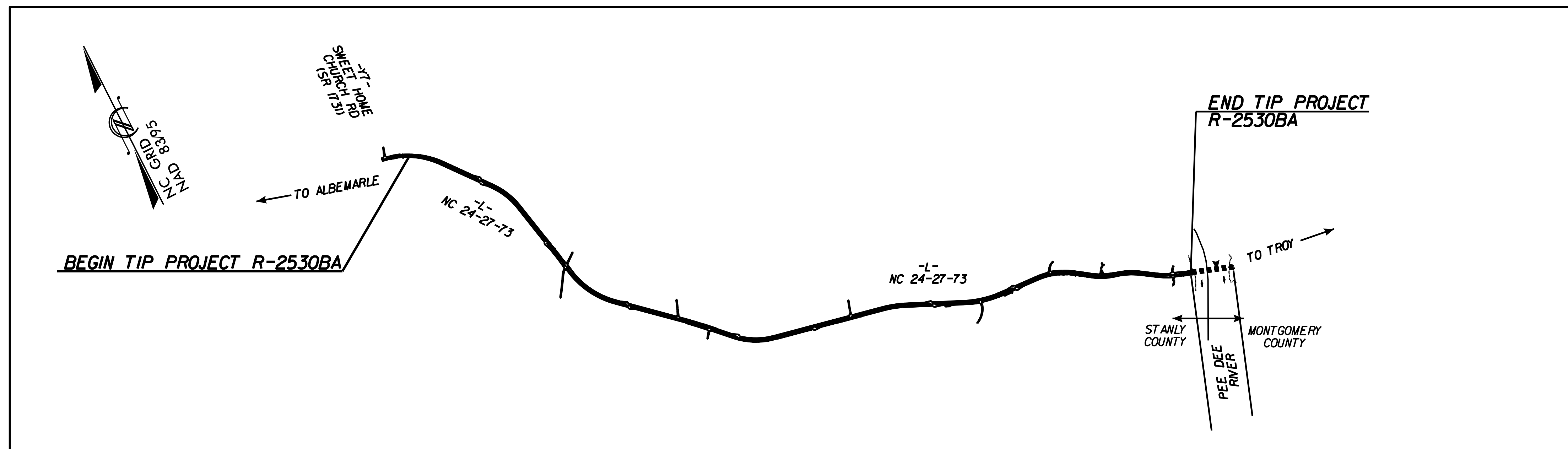
STANLY COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2530BA	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34446.1.8		P.E.	
34446.3.5		CONST.	

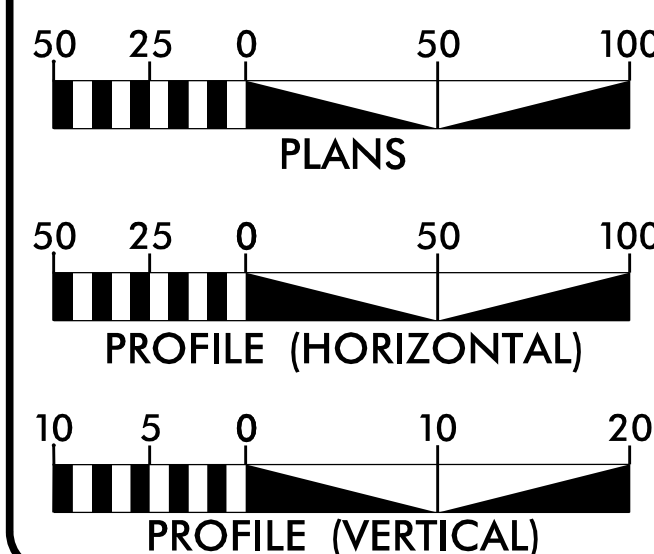


**LOCATION: NC 24-27 FROM SR-1731 (SWEET HOME CHURCH RD.)
TO THE PEE DEE RIVER**

**TYPE OF WORK: INSTALL RUMBLE STRIPS ON THE INSIDE
AND OUTSIDE SHOULDERS**



GRAPHIC SCALES



DESIGN DATA

AADT 2019 =
AADT 2039 =
K =
D =
T =
V =

FUNCTIONAL CLASSIFICATION:

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2530BA = 4.40 MILES
TOTAL LENGTH TIP PROJECT R-2530BA = 4.40 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
DIVISION TEN

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
N/A

LETTING DATE:
DECEMBER 17, 2025

JASON BROOKS
PROJECT ENGINEER

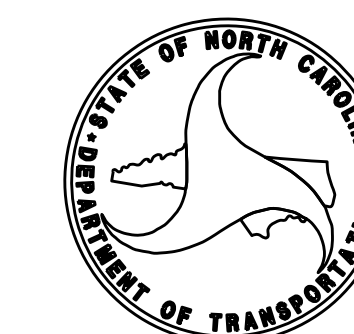
JASON BROOKS
PROJECT DESIGN ENGINEER

TRAVIS PRESLAR, P.E.
TEAM LEAD
NCDOT PROJECT MANAGEMENT UNIT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER

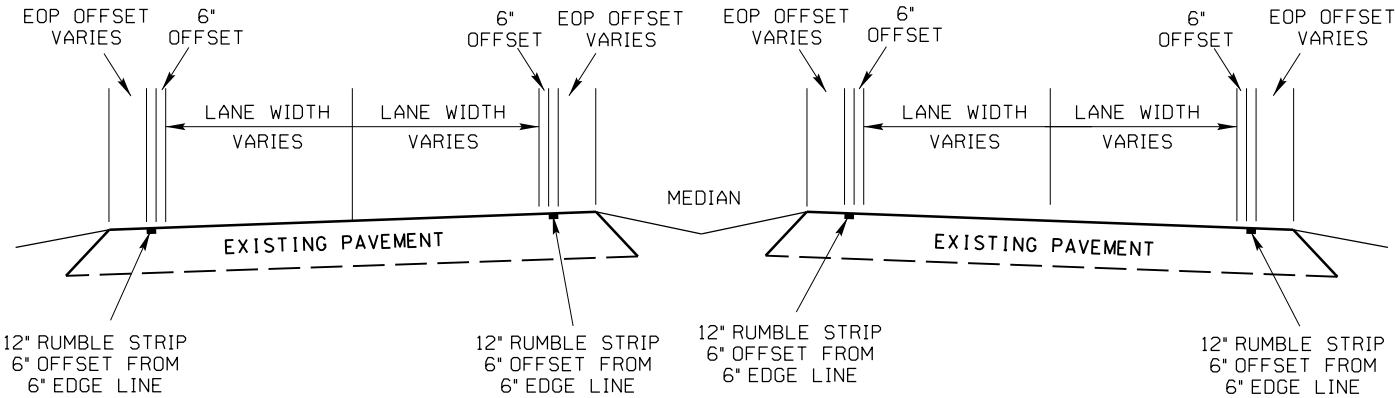
SIGNATURE: _____ P.E.



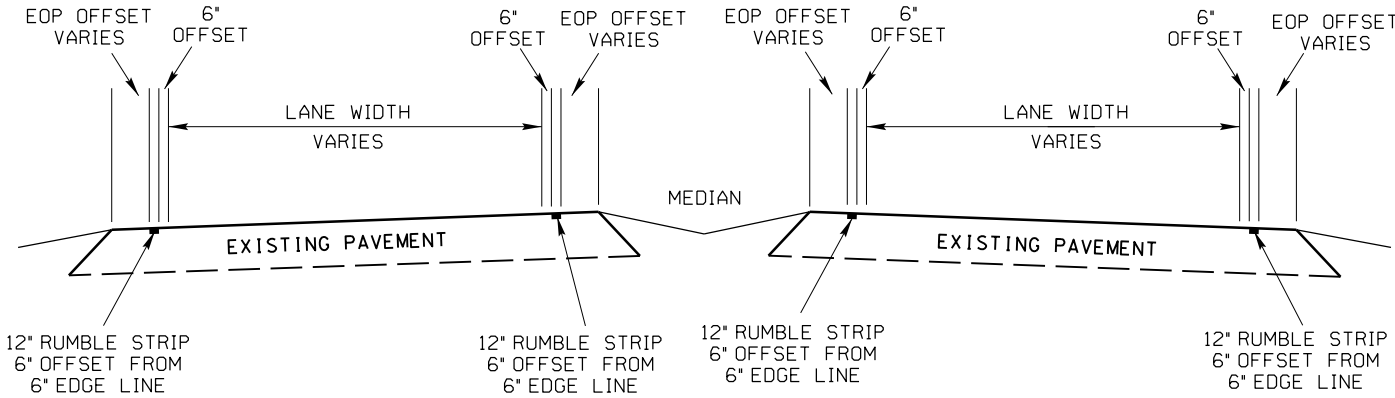
\$DATE\$

DIVIDED FACILITIES

SHOULDERS > 3' STANDARD RUMBLE (NON-RESIDENTIAL AREAS)




SHOULDERS > 3' SINUSOIDAL RUMBLE (RESIDENTIAL AREAS)

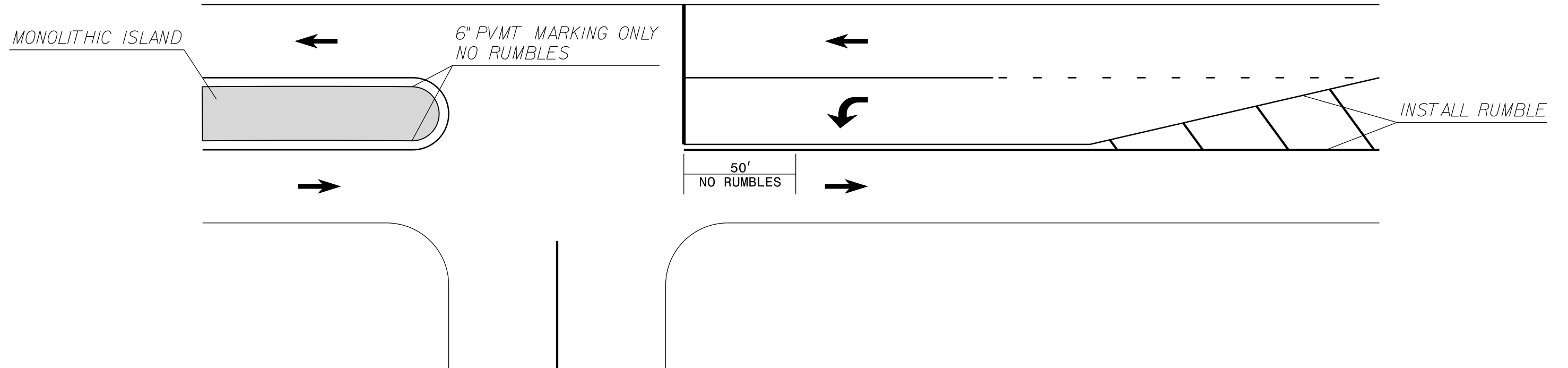


NOTES:

- 1) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.
- 3) MONOLITHIC ISLAND SECTIONS SHALL STILL RECEIVE PAVEMENT MARKINGS
- 4) SHOULDERS OR MEDIANS THAT HAVE CURB OR MONOLITHIC ISLANDS SHALL NOT RECEIVE RUMBLE STRIPS
- 5) MAINTAIN A MINIMUM EFFECTIVE LANE WIDTH OF 10' FROM INSIDE EDGE OF RUMBLE TO CENTERLINE OF PAVEMENT MARKING
- 6) 4" PAVEMENT MARKING MAY BE USED IF 10' EFFECTIVE LANE WIDTH (EDGE RUMBLE TO THE OUTSIDE MARKING CANNOT BE ACHIEVED)

RUMBLE STRIPS ON MULTI-LANE DIVIDED FACILITIES WITH GREATER THAN 3' SHOULDER WIDTHS

SCALE	r=50'		REVISIONS
DATE	5-2025		
DWG. BY	CEB		
DESIGN BY	CEB		
APPROVED	MAM		



NOTES:

- 1) MONOLITHIC ISLAND SECTIONS SHALL STILL RECEIVE PAVEMENT MARKINGS
- 2) SHOULDERS OR MEDIANS THAT HAVE CURB OR MONOLITHIC ISLANDS SHALL NOT RECEIVE RUMBLE STRIPS
- 3) MAINTAIN A MINIMUM EFFECTIVE LANE WIDTH OF 10' FROM INSIDE EDGE OF RUMBLE TO CENTERLINE OF PAVEMENT MARKING
- 4) STOP THE CENTERLINE RUMBLE STRIPS 50' FROM THE STOP BAR.

RUMBLE STRIP PLACEMENT AT GORE AREAS AND INTERSECTIONS

SCALE	r=50'
DATE	5-2025
DWG. BY	CEB
DESIGN BY	CEB
APPROVED	MAM

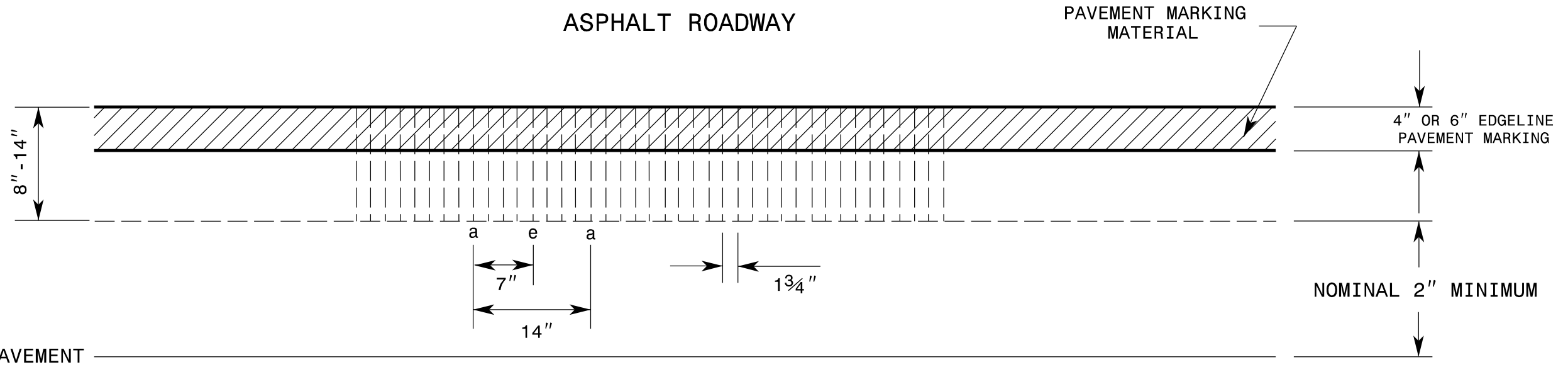


REVISIONS

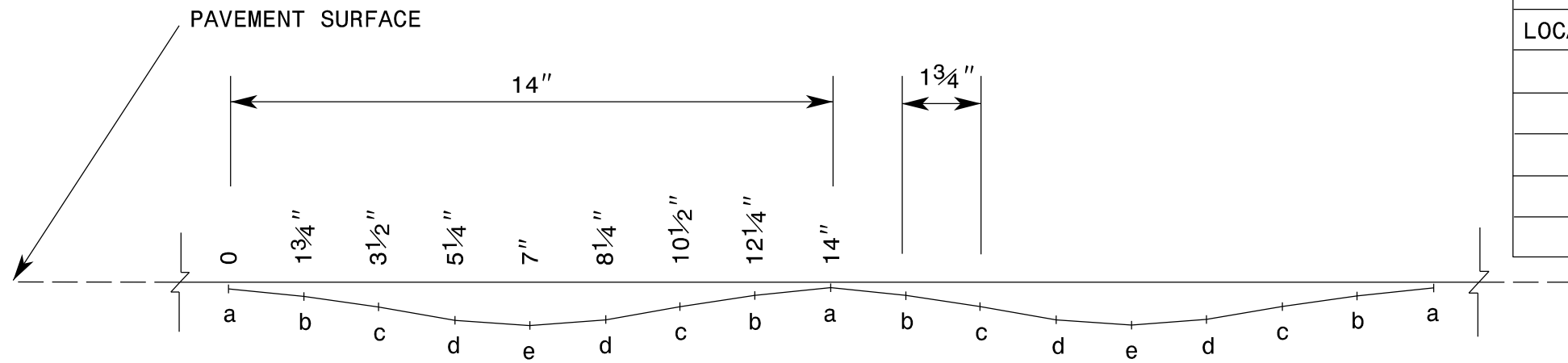
See Table 1 within Rumble Strip Policy for Design Guidance

PLAN VIEW

TRAVEL LANE(S)
ASPHALT ROADWAY



PROFILE VIEW



LOCATION	DEPTH	
	MIL	INCHES
a	62.5	1/16"
b	125	1/8"
c	219	7/32"
d	344	11/32"
e	375	3/8"

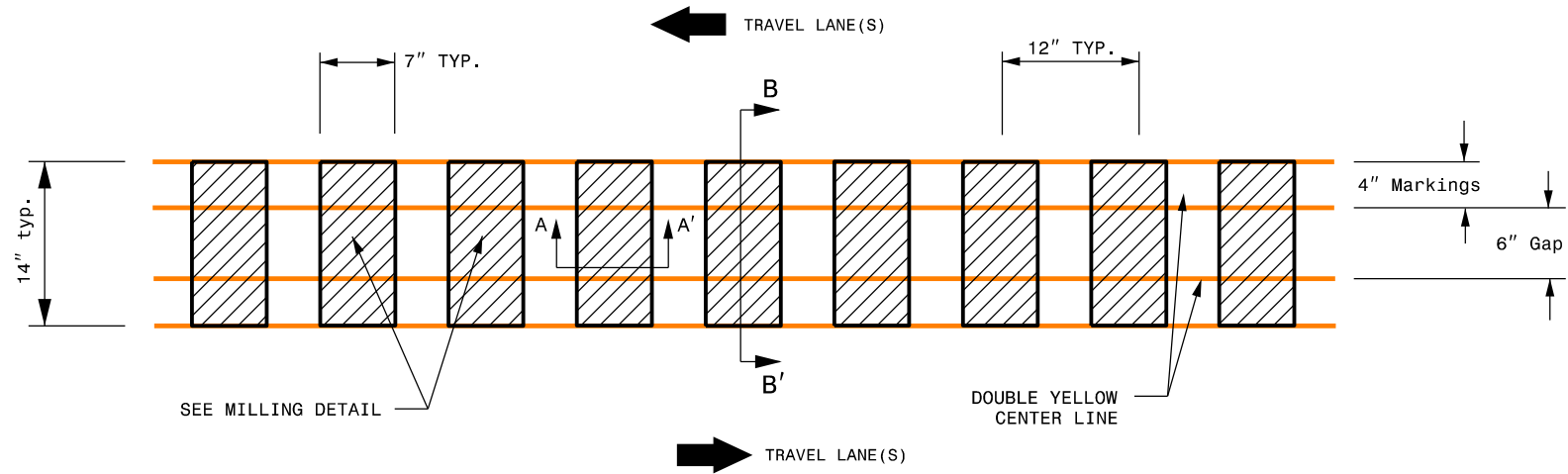
REFERENCE DRAWING ID: Sin.Stripe

NOTES:

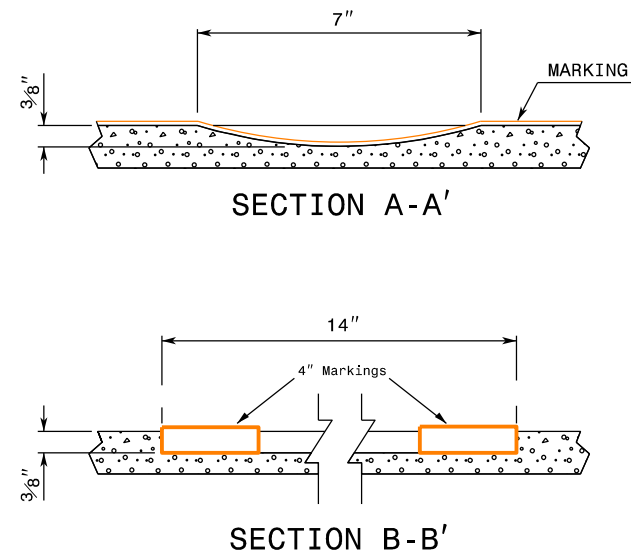
- 1) Specification in table taken from MNDOT Research Project Final Report 2016-23: *Sinusoidal Rumble Strip Design Optimization Study By: Terhaar et. al, June 2016*
- 2) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 3) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.

See Table 2 within Rumble Strip Policy for Design Guidance

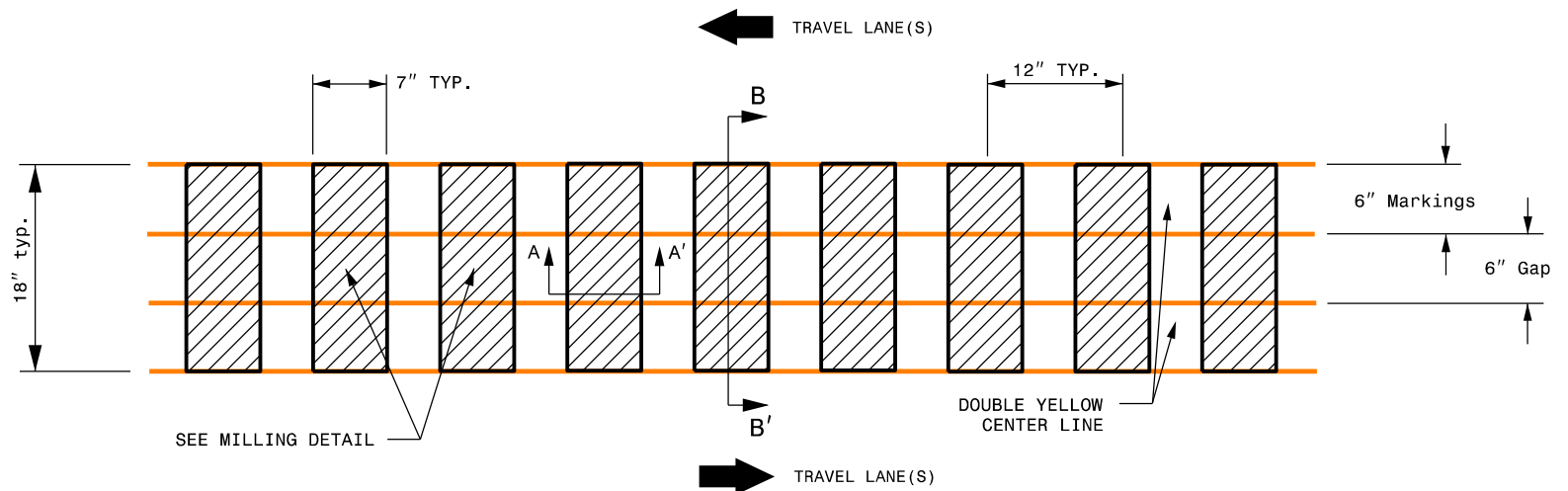
If 4" Markings will be used:



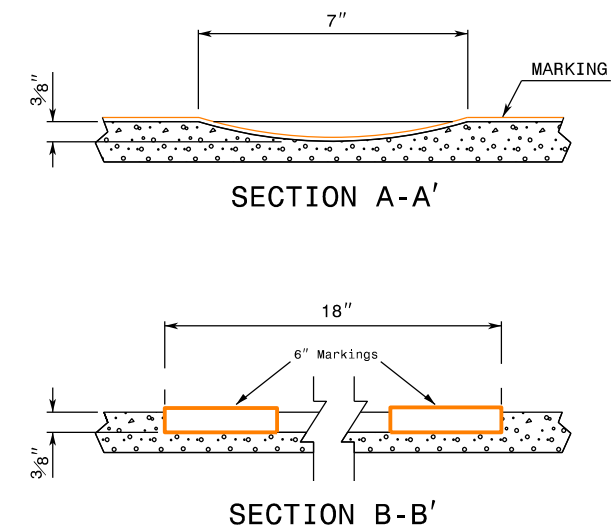
MILLING DETAIL - 4" Markings



If 6" Markings will be used:



MILLING DETAIL - 6" Markings

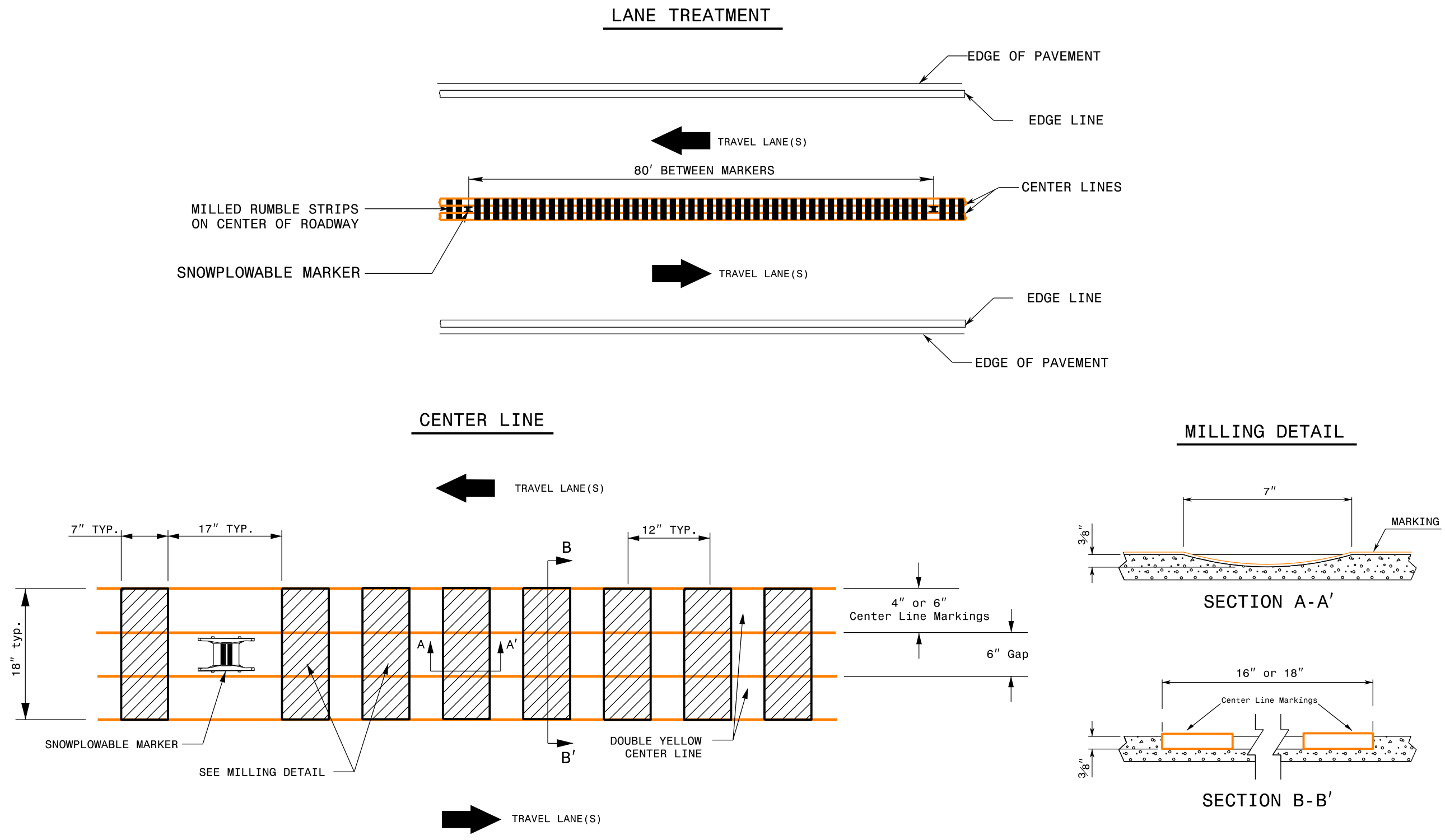


REFERENCE DRAWING ID: Trad.CL

NOTES:

- 1) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.

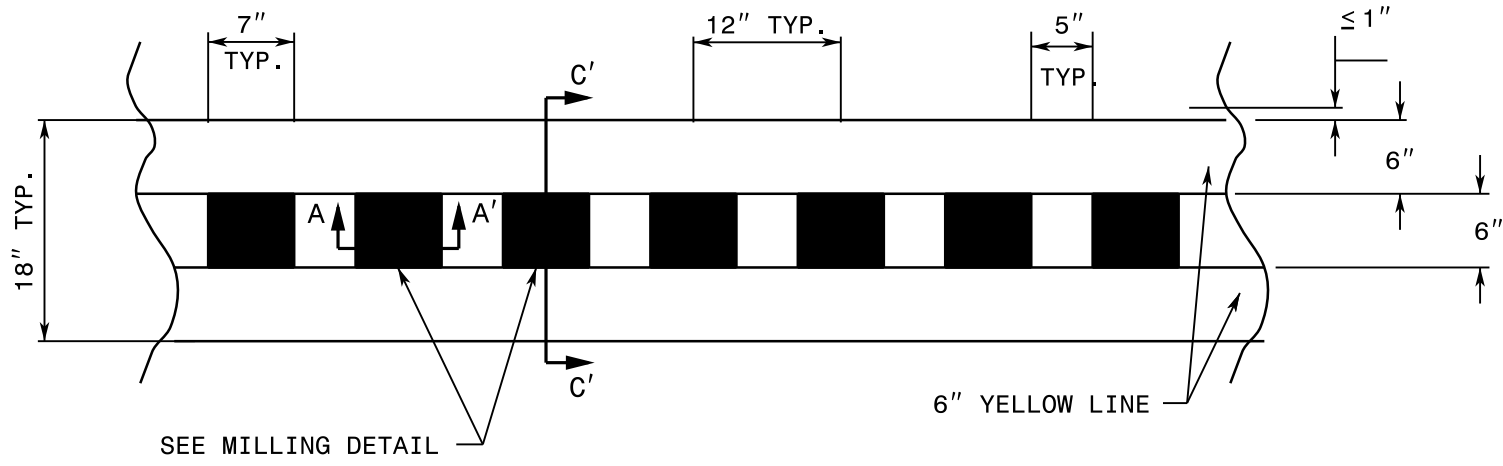
See Table 2 within Rumble Strip Policy for Design Guidance



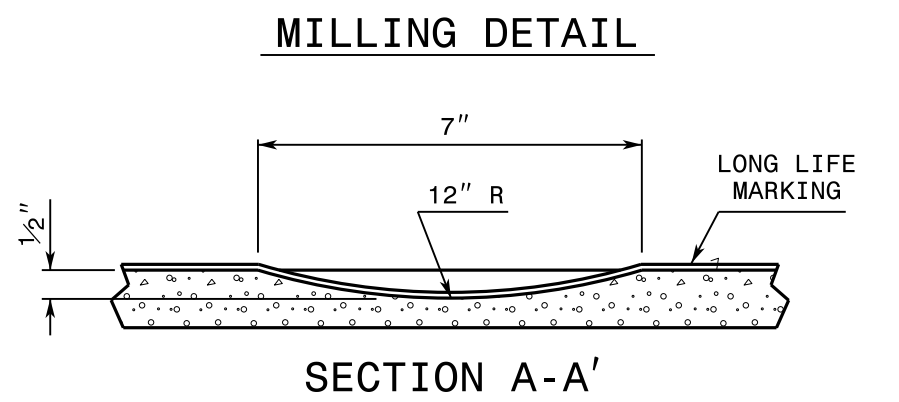
REFERENCE DRAWING ID: Trad.CL with Snowplowable Markers

NOTES:

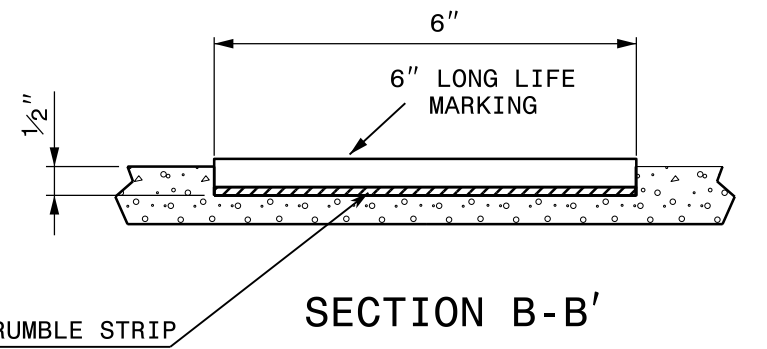
- 1) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.
- 3) INSTALL SNOWPLOWABLE MARKERS AT APPROXIMATELY 80' INCREMENTS. DO NOT MILL RUMBLE STRIPS IN SECTION WHERE SNOWPLOWABLE MARKERS ARE INSTALLED.



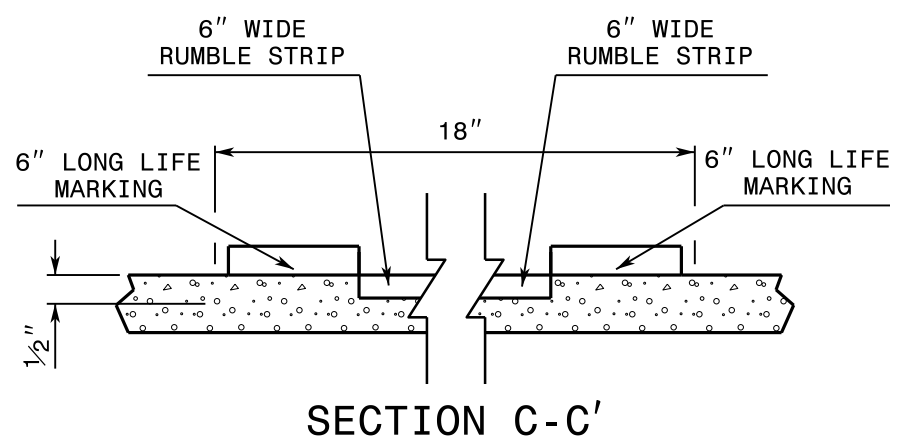
CENTERLINE



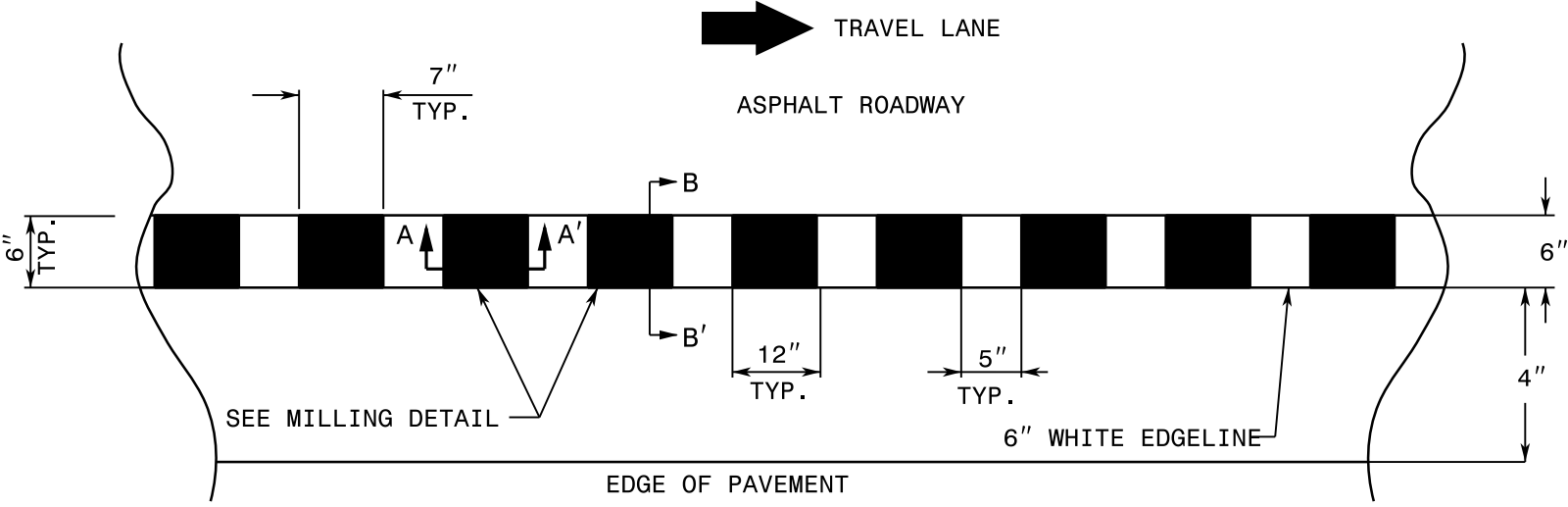
SECTION A-A'



SECTION B-B'

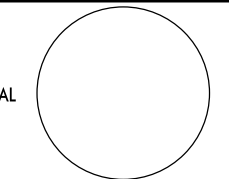


SECTION C-C'

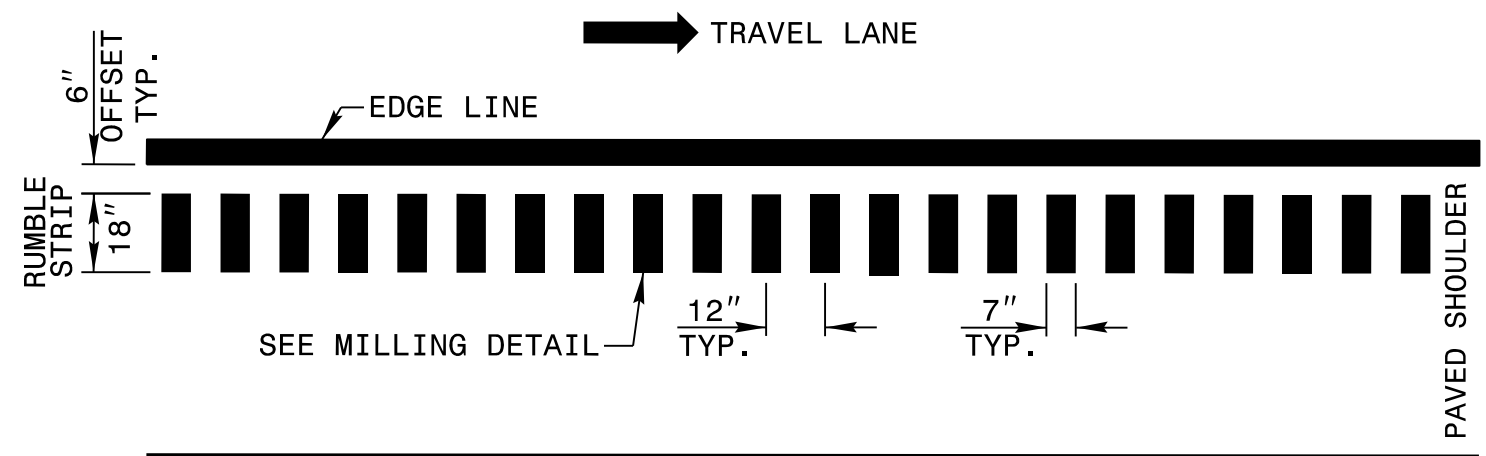


NOTE:

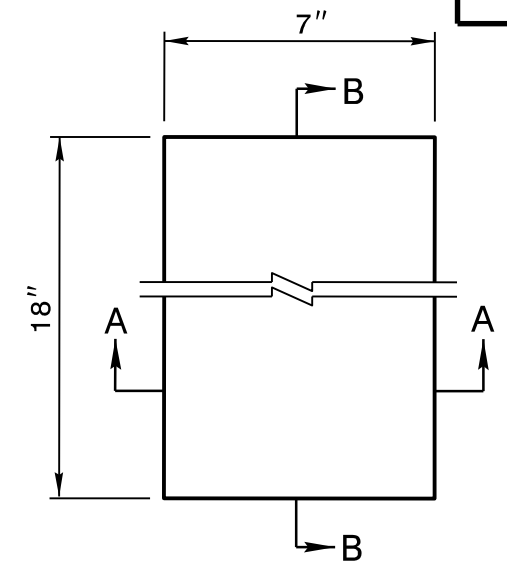
- 1) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.
- 3) IF SNOWPLOWABLE MARKERS ARE TO BE INSTALLED IN THE CENTERLINE, SKIP A 18" SPACE IN THE RUMBLE STRIPS EVERY 80'

APPROVED: _____	DATE: _____	MILLED RUMBLE STRIP DETAIL	
			
		DATE: JUN 17'	
DESIGN BY: TWB			
REVIEWED BY: _____			

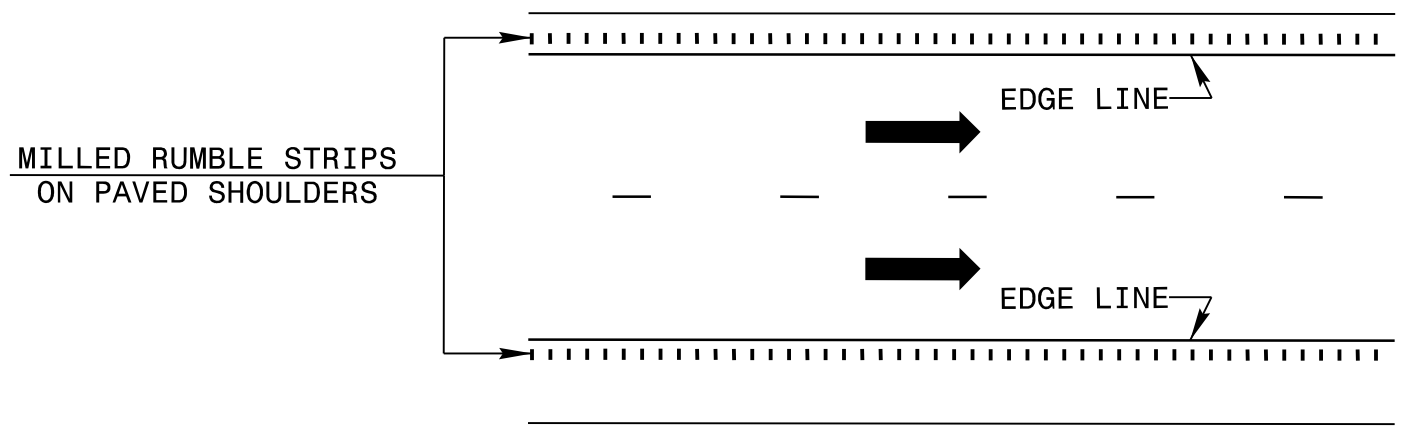
17-JAN-2024 10:04 AM
 C:\Users\jamesone\OneDrive - State of North Carolina\Desktop\Rumble Strip Typicals.dgn
 USER: jamesone



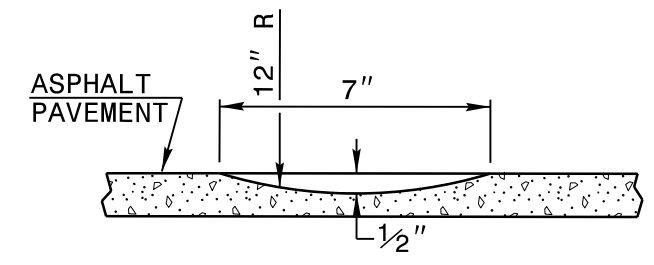
**PLAN VIEW
PAVED SHOULDER**



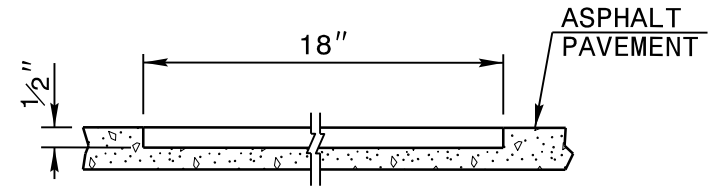
**PLAN VIEW
MILLING DETAIL**



LANE TREATMENT



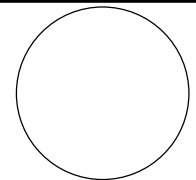

SECTION A-A



SECTION B-B

NOTES:

1. THE MILLING OPERATION SHALL MAINTAIN A MINIMUM CLEARANCE OF 3" FROM CONSTRUCTION JOINTS.

APPROVED: _____ DATE: _____	MILLED/SINUSOIDAL RUMBLE STRIP DETAIL		REVISIONS	
SEAL 			SCALE: NONE	
	DATE: _____			
	DWG. BY: _____			
	DESIGN BY: _____			
REVIEWED BY: _____			CADD FILE	