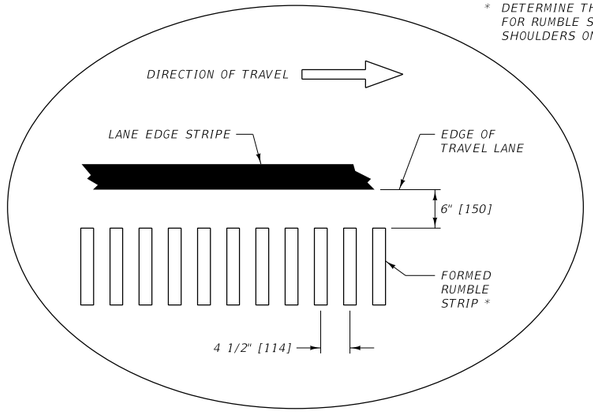
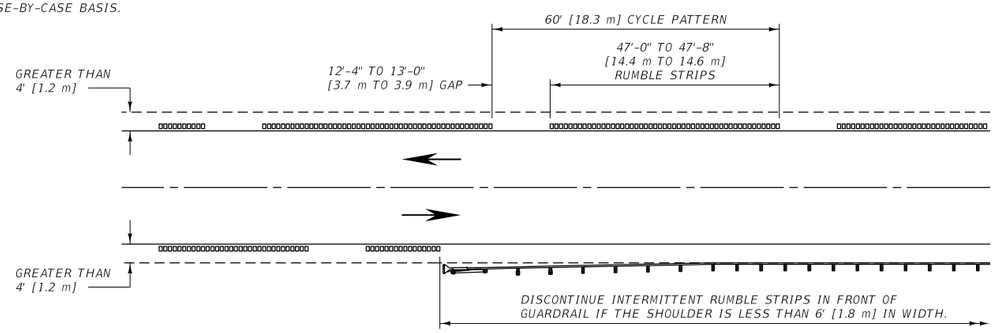
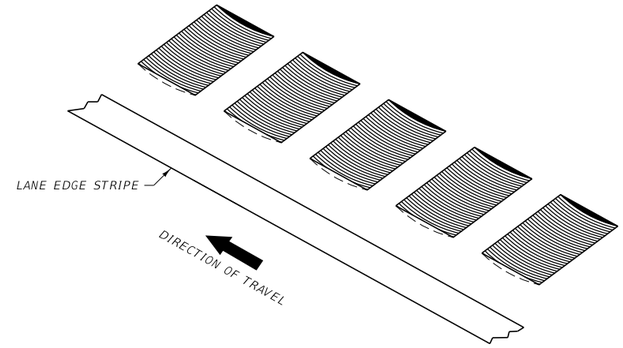
* DETERMINE THE METHOD OF INSTALLATION FOR RUMBLE STRIPS ON EXISTING CONCRETE SHOULDERS ON A CASE-BY-CASE BASIS.



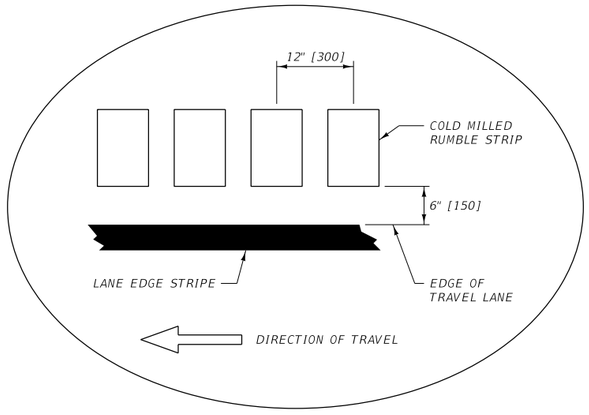
TYPICAL SHOULDER INSTALLATION (CONCRETE PAVEMENT)



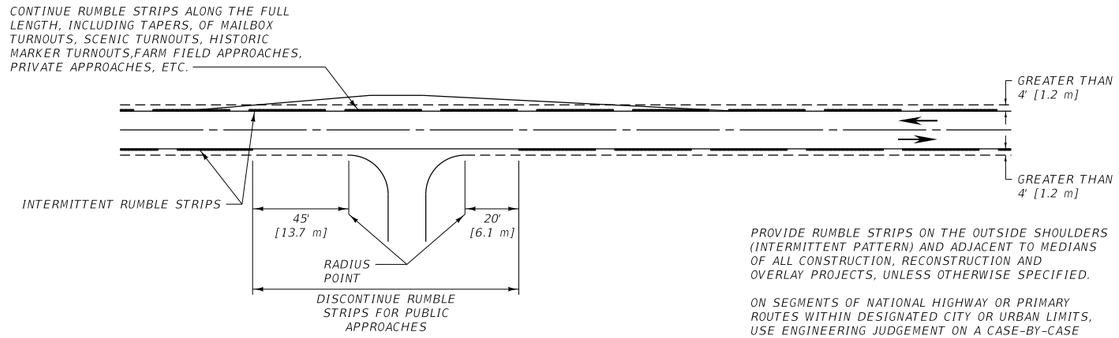
INTERMITTENT RUMBLE STRIP SPACING



ISOMETRIC VIEW



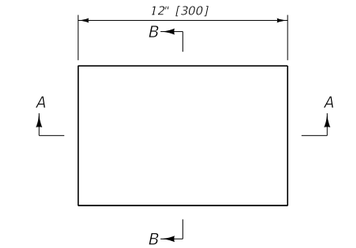
TYPICAL SHOULDER INSTALLATION (ASPHALT PAVEMENT)



TYPICAL APPLICATION

PROVIDE RUMBLE STRIPS ON THE OUTSIDE SHOULDERS (INTERMITTENT PATTERN) AND ADJACENT TO MEDIANS OF ALL CONSTRUCTION, RECONSTRUCTION AND OVERLAY PROJECTS, UNLESS OTHERWISE SPECIFIED.

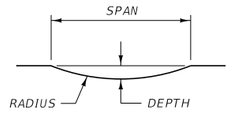
ON SEGMENTS OF NATIONAL HIGHWAY OR PRIMARY ROUTES WITHIN DESIGNATED CITY OR URBAN LIMITS, USE ENGINEERING JUDGEMENT ON A CASE-BY-CASE BASIS TO DETERMINE IF RUMBLE STRIP INSTALLATION IS APPROPRIATE.



PLAN



SECTION A-A



SECTION B-B

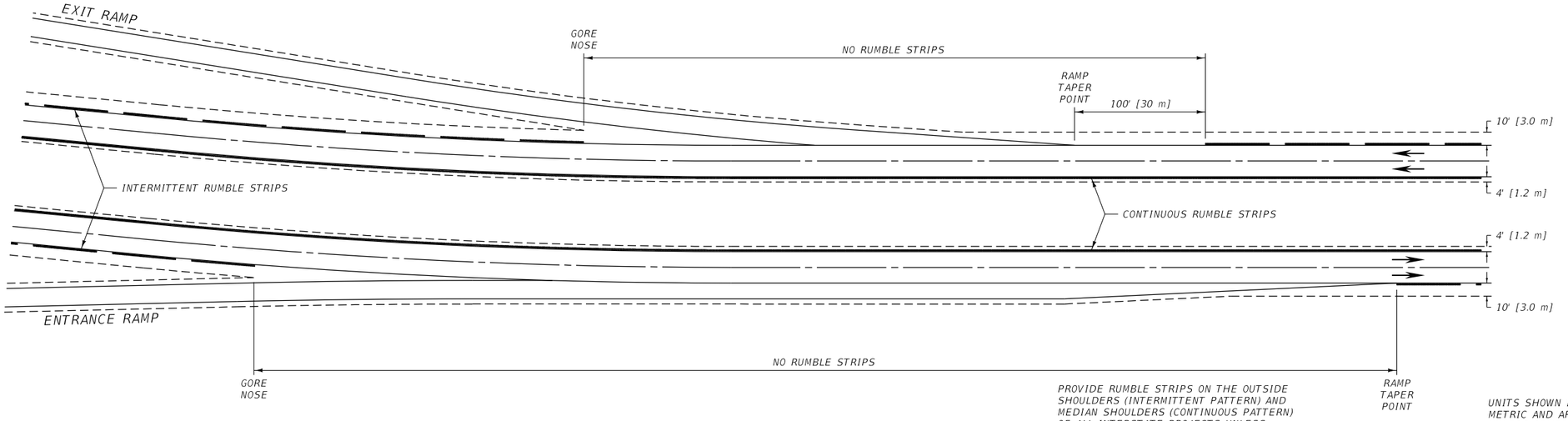
	DEPTH	RADIUS	SPAN
CONCRETE	1"	1"	2"
ASPHALT	1/2" TO 3/4"	12" MAX.	6 7/8" TO 8 3/8"

	DEPTH (mm)	RADIUS (mm)	SPAN (mm)
CONCRETE	25	25	50
ASPHALT	13 TO 19	300 MAX.	175 TO 200

RUMBLE STRIP DETAIL

NOTE:

DO NOT INSTALL RUMBLE STRIPS OVER CONCRETE BRIDGE DECKS OR WHERE OBSTACLES, SUCH AS CONCRETE BARRIER RAIL, PREVENT PROPER PLACEMENT.



INTERSTATE APPLICATION

PROVIDE RUMBLE STRIPS ON THE OUTSIDE SHOULDERS (INTERMITTENT PATTERN) AND MEDIAN SHOULDERS (CONTINUOUS PATTERN) OF ALL INTERSTATE PROJECTS UNLESS OTHERWISE SPECIFIED.

DISCONTINUE RUMBLE STRIPS IN FRONT OF EXIT AND ENTRANCE RAMPS.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

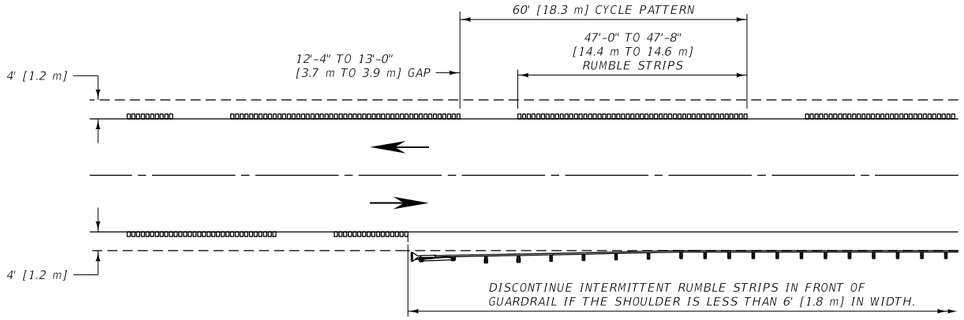
DETAILED DRAWING

REFERENCE STANDARD SPEC. SECTION 411

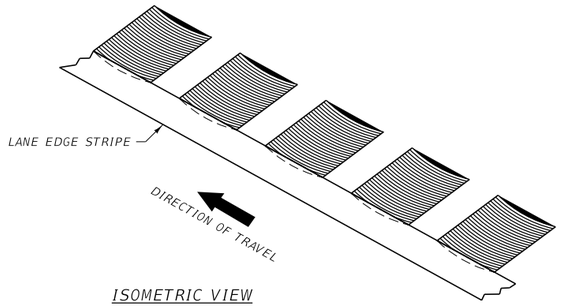
DWG. NO. 411-02

SHOULDER RUMBLE STRIPS

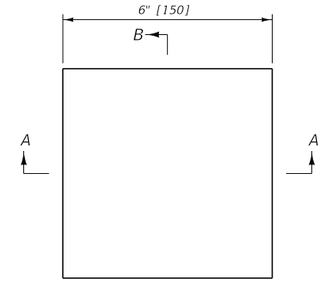
MDT MONTANA DEPARTMENT OF TRANSPORTATION



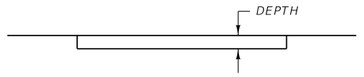
INTERMITTENT RUMBLE STRIP SPACING



ISOMETRIC VIEW



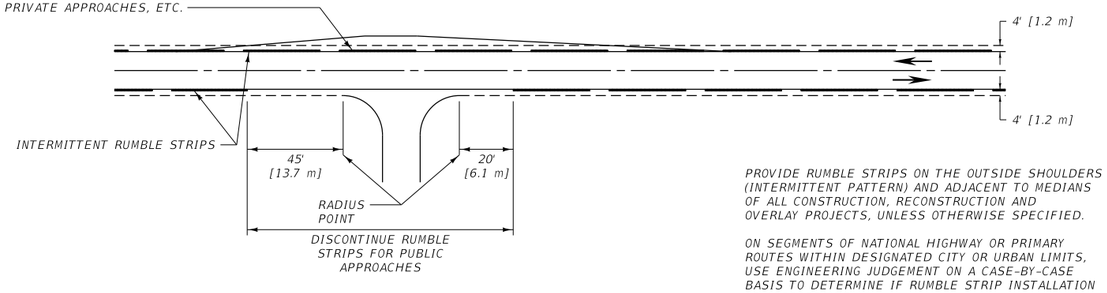
PLAN



SECTION A-A

SECTION B-B

CONTINUE RUMBLE STRIPS ALONG THE FULL LENGTH, INCLUDING TAPERS, OF MAILBOX TURNOUTS, SCENIC TURNOUTS, HISTORIC MARKER TURNOUTS,FARM FIELD APPROACHES, PRIVATE APPROACHES, ETC.



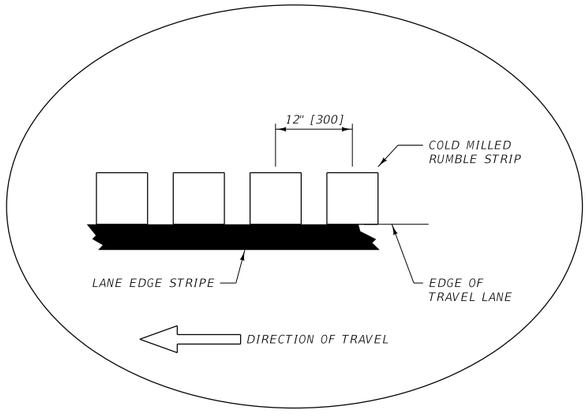
TYPICAL APPLICATION

PROVIDE RUMBLE STRIPS ON THE OUTSIDE SHOULDERS (INTERMITTENT PATTERN) AND ADJACENT TO MEDIANS OF ALL CONSTRUCTION, RECONSTRUCTION AND OVERLAY PROJECTS, UNLESS OTHERWISE SPECIFIED.

ON SEGMENTS OF NATIONAL HIGHWAY OR PRIMARY ROUTES WITHIN DESIGNATED CITY OR URBAN LIMITS, USE ENGINEERING JUDGEMENT ON A CASE-BY-CASE BASIS TO DETERMINE IF RUMBLE STRIP INSTALLATION IS APPROPRIATE.

	DEPTH	RADIUS	SPAN
ASPHALT	1/2" TO 3/4"	12" MAX.	6 7/8" TO 8 3/8"

	DEPTH (mm)	RADIUS (mm)	SPAN (mm)
ASPHALT	13 TO 19	300 MAX.	175 TO 200



TYPICAL SHOULDER INSTALLATION
(ASPHALT PAVEMENT)

RUMBLE STRIP DETAIL

NOTE:

1. DO NOT INSTALL RUMBLE STRIPS OVER CONCRETE BRIDGE DECKS OR WHERE OBSTACLES, SUCH AS CONCRETE BARRIER RAIL, PREVENT PROPER PLACEMENT.

2. INSTALLATION ON SHOULDERS LESS THAN 4-FT [1.2 m] WILL BE DECIDED ON A CASE-BY-CASE BASIS.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

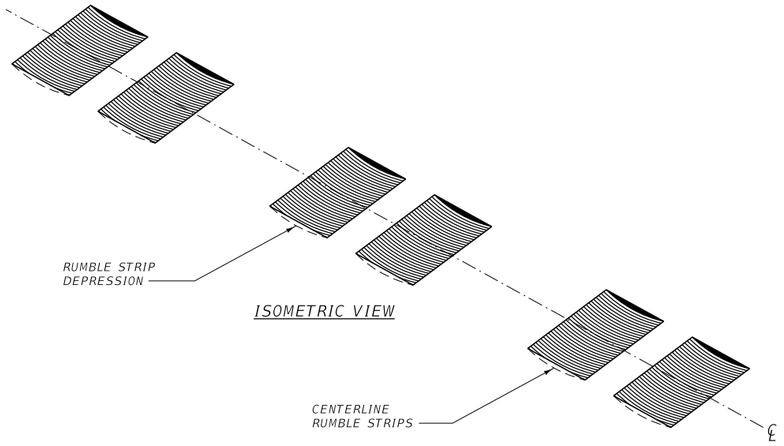
DETAILED DRAWING

REFERENCE STANDARD SPEC. SECTION 411

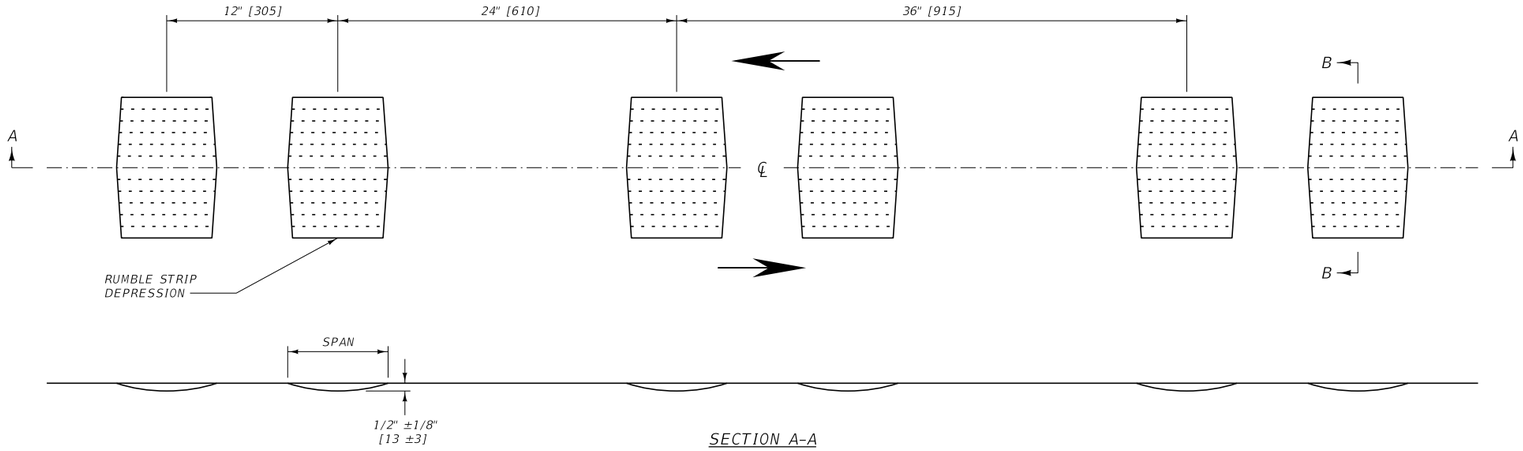
DWG. NO. 411-03

MODIFIED SHOULDER RUMBLE STRIPS

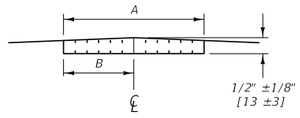
MDT MONTANA DEPARTMENT OF TRANSPORTATION



ISOMETRIC VIEW



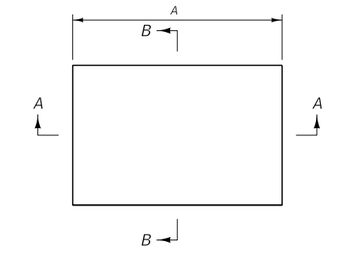
SECTION A-A



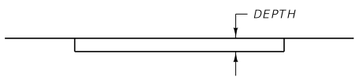
SECTION B-B

ENGLISH DIMENSIONS			
TYPE		INCHES	
		A	B
1	NO SHOULDER	6	3
2	≤ 2.0' SHOULDER	8	4
3	> 2.0' SHOULDER	12	6

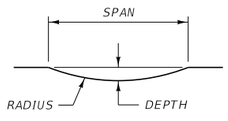
METRIC DIMENSIONS			
TYPE		mm	
		A	B
1	NO SHOULDER	150	75
2	≤ 0.6 m SHOULDER	200	100
3	> 0.6 m SHOULDER	300	150



PLAN



SECTION A-A

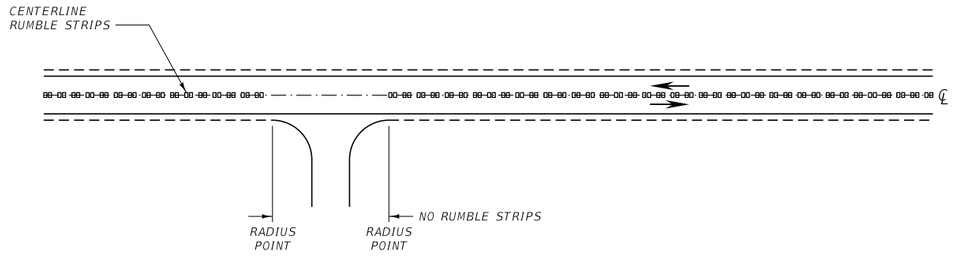


SECTION B-B

	DEPTH	SPAN
ASPHALT	1/2" ±1/8"	6" TO 7"

	DEPTH (mm)	SPAN (mm)
ASPHALT	13 ±3	150 TO 175

RUMBLE STRIP DETAIL



PUBLIC APPROACH ②

NOTES:

① ROUTES WITHIN DESIGNATED CITY OR URBAN LIMITS, USE ENGINEERING JUDGEMENT ON A CASE-BY-CASE BASIS TO DETERMINE IF CENTERLINE RUMBLE STRIP INSTALLATION IS APPROPRIATE.

② BREAK CENTERLINE RUMBLE STRIPS FOR PUBLIC APPROACHES ONLY.

③ CONSIDER REMILLING EXISTING CENTERLINE RUMBLE STRIPS PRIOR TO A SECOND SEAL AND COVER APPLICATION.

④ DO NOT INSTALL CENTERLINE RUMBLE STRIPS ON CONCRETE BRIDGE DECKS.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING

REFERENCE STANDARD SPEC. SECTION 411

DWG. NO. 411-05

CENTERLINE RUMBLE STRIPS

MDT MONTANA DEPARTMENT OF TRANSPORTATION