

1 Make the following Section a part of the Standard Specifications:
2
3

4 **"SECTION 615 – MILLED RUMBLE STRIP**
5

6 **615.01 Description.** This section describes constructing Centerline and
7 Edgeline Milled Rumble Strips (MRS) in HMA pavement.
8

9 **615.02 Materials.** None.
10

11 **615.03 Construction.**
12

13 **(A) Submittal.** Method of constructing the milled rumble strip shall
14 be submitted to the Engineer for acceptance. Meeting shall be
15 scheduled 14 days before start of construction work. Discuss sequence
16 of work plans, and proposal for dust control.
17

18 **(B) Equipment.** Milling equipment shall be equipped with a rotary-
19 type cutting head with cutting tips arranged in a pattern as to provide a
20 relatively smooth cut, approximately 1/16 inches between peaks and
21 valleys.
22

23 The cutting head(s) shall be on a suspension independent from the
24 power unit to allow the head(s) to self-align with surface slopes and
25 irregularities.
26

27 The machine shall have a guidance system that provides
28 consistent alignment of each cut in relation to the roadway and provide
29 uniformity and consistency throughout the project.
30

31 **(C) Longitudinal Spacing.** The Milled Rumble Strips (MRS) shall be
32 placed perpendicular to the roadway with longitudinal spacing as follow:
33

34 Centerline MRS: 20 inch on-center (milled across centerline)
35 Edgeline MRS: 12 inch on-center (within edgeline)
36

37 The 20 inch on-center longitudinal spacing for Centerline MRS is
38 designed to accommodate multiple centerline pavement striping and
39 raised pavement marker configurations. It will allow placement of raised
40 pavement markers between the milled concave depressions.
41

42 **(D) Milling Operations.** Clean pavement surface before constructing
43 the rumble strips. Mill the concave depressions to the dimensions shown
44 in the plans.
45

Align the concave depressions as shown in the plans. Alignment of milled rumble strips shall not deviate from the plans more than ± 2 inches.

After the concave depressions are milled into the pavement surface, use a power broom or sweeper/vacuum to collect the waste material resulting from the milling operations.

Contractor shall dispose the waste material as directed by the Engineer at no increase in contract price or contract time.

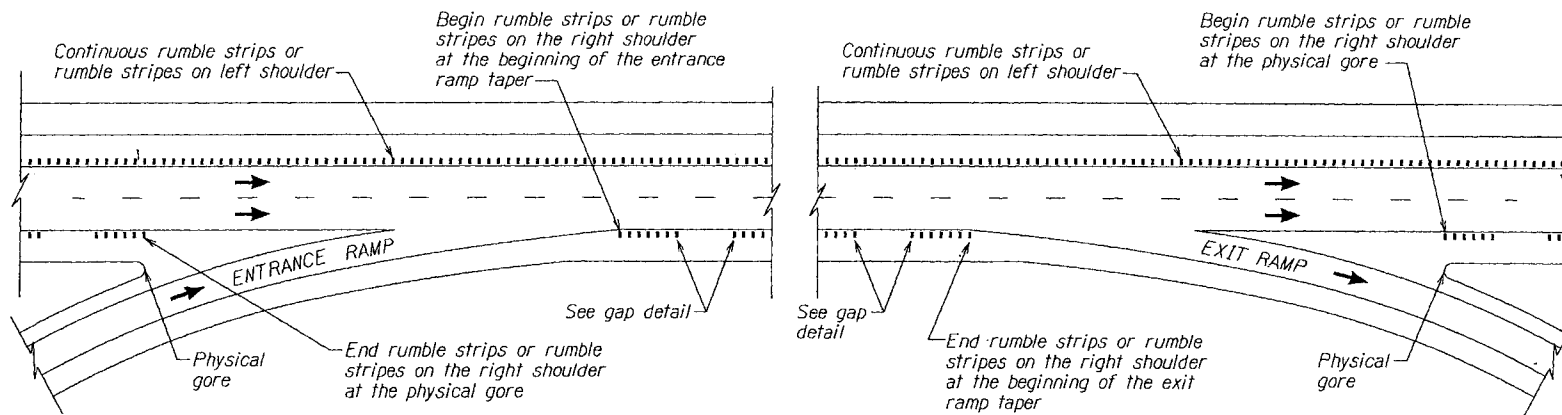
615.04 Measurement. The Engineer will measure for furnishing and installing milled rumble strip per linear foot.

615.05 Payment. The Engineer will pay for the accepted milled rumble strip on at the contract unit price per linear foot. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for the following pay item when included in the proposal schedule:

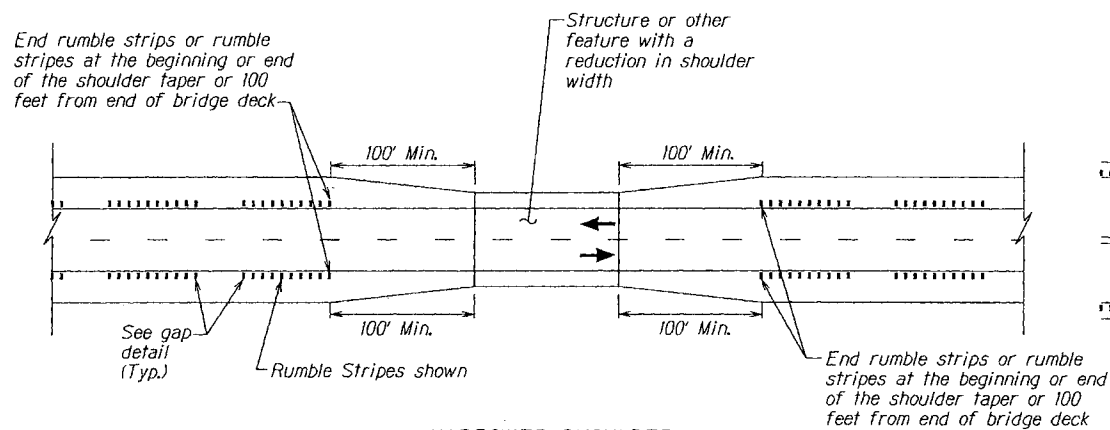
Pay Item	Pay Unit
16-Inch Milled Rumble Strip, Centerline	Linear Foot
12-Inch Milled Rumble Strip, Edgeline	Linear Foot"

END OF SECTION 615



DIVIDED HIGHWAY

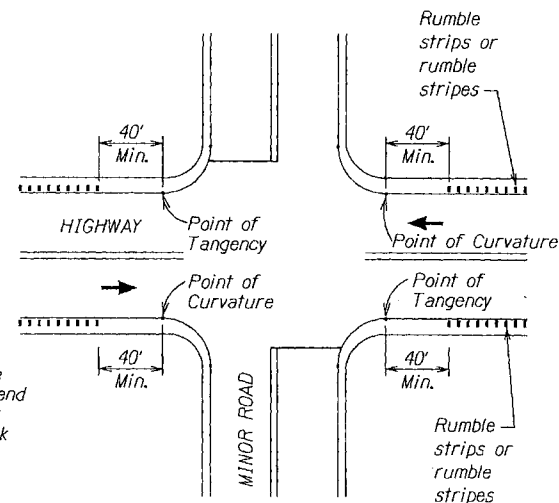
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NARROWED SHOULDER

TWO-LANE HIGHWAY

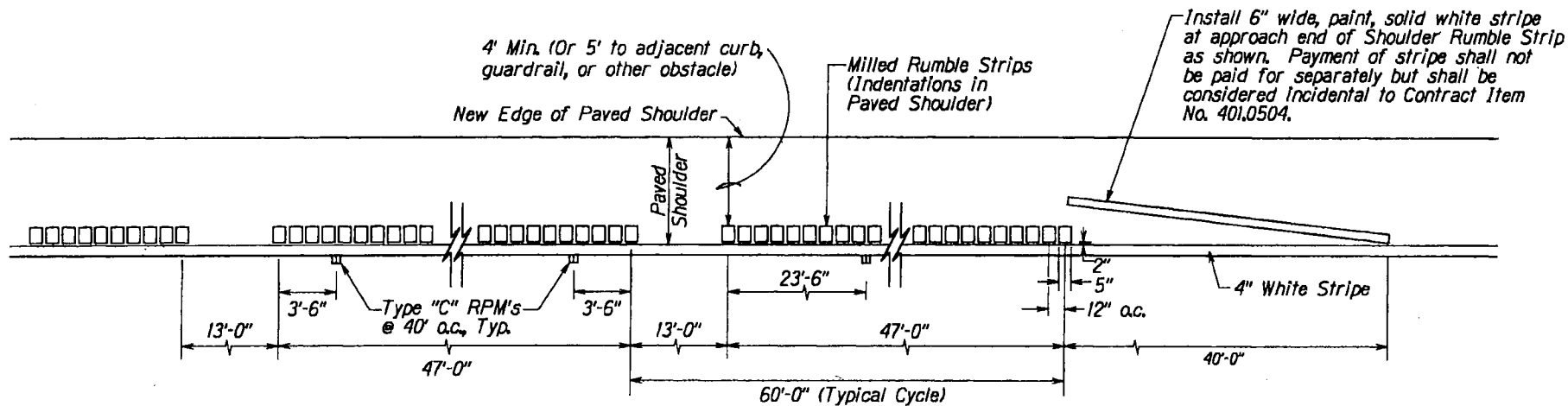
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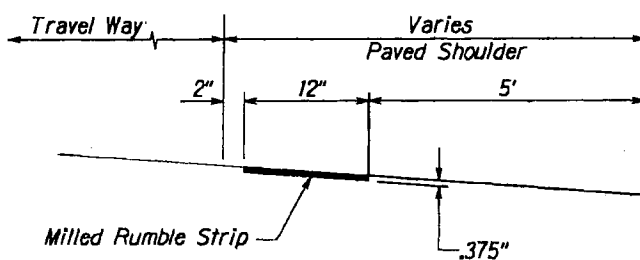
INTERSECTION

HSIP-0700(079)

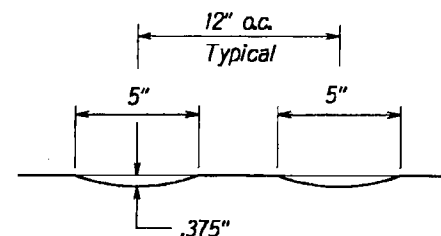
615-3a



PLAN - MILLED RUMBLE STRIP
Not to Scale



LONGITUDINAL SECTION - MILLED RUMBLE STRIP



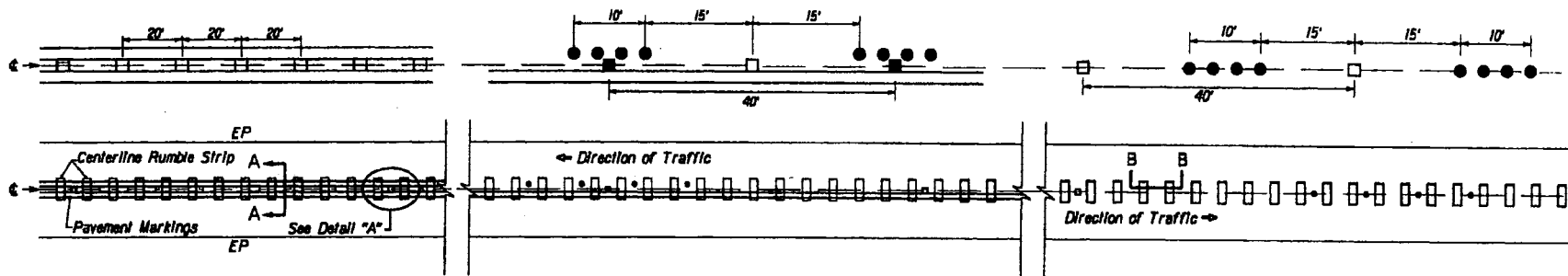
CROSS SECTION - MILLED RUMBLE STRIP
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NOTES:

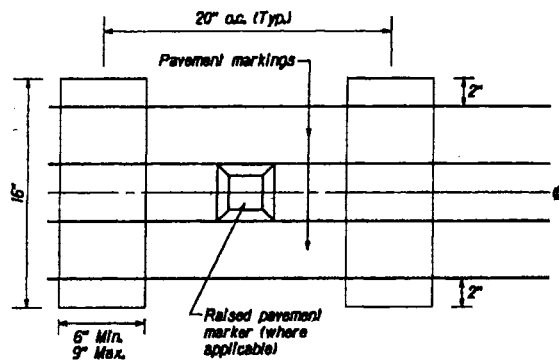
1. Shoulder rumble strip should not be used unless 4 feet of clear shoulder width for bicycle use is available between the rumble strips and the outer edge of the paved shoulder. Length of rumble strip may be reduced from 12" to 6" minimum where needed to meet clearance.
2. Do not place Type "C" markers within 2 feet of the 13 feet Rumble Strip opening.
3. For median shoulders, 4 feet minimum clearance not required. Also, 13 feet opening not required.
4. For interstates and freeways, 13 feet opening not required.

SHOULDER RUMBLE STRIPS

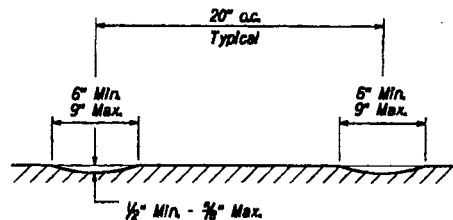
HSIP-0700(079)
615-4a



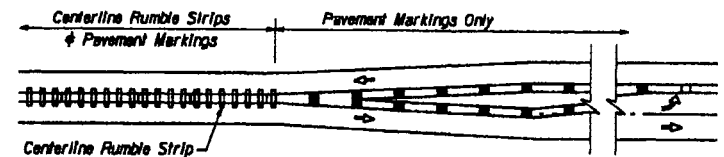
PLAN - CENTERLINE MILLED RUMBLE STRIP
Not to Scale



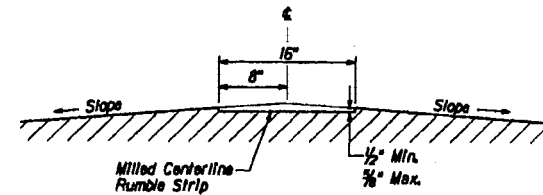
DETAIL "A"
Not to Scale



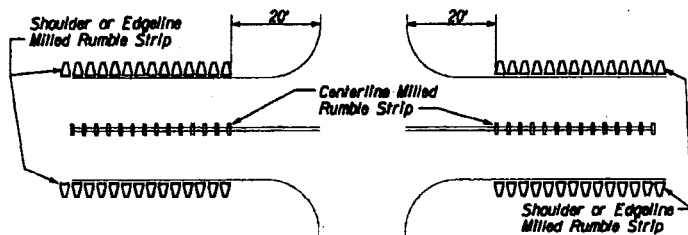
SECTION B-B - CENTERLINE MILLED RUMBLE STRIP
Not to Scale



CENTERLINE MILLED RUMBLE STRIP INSTALLATION LIMIT
Not to Scale



SECTION A-A - CENTERLINE MILLED RUMBLE STRIP
Not to Scale



MILLED RUMBLE STRIP INSTALLATION LIMITS
Not to Scale

NOTES:

1. Dimensions shown are approximate. Adjust rumble strip spacing to coordinate with pavement markings prior to installation.
2. Raised pavement markers shall be installed on level surface between the rumble strips. Do not install raised pavement markers inside the milled area.
3. Do not install centerline rumble strips on bridge decks.
4. Where at-grade bridges are present, rumble strips shall end/begin 20 L.F. beyond the existing bridge deck joints/concrete approach slab.
5. Hot spray thermoplastic shall be used for solid line markings within the milled centerline rumble strip area.

CENTERLINE RUMBLE STRIPS

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615-5a