

B342 - CENTRELINE AND SHOULDER RUMBLE STRIPS IN ASPHALT (OPSS 342)

342.1 GENERAL

A rumble strip is a grooved formation that is installed into the asphalt paved surface. The intent of shoulder rumble strips (SRS) and centreline rumble strips (CRS) is to provide an audible and tactile warning to drivers that they are departing from the roadway. This audible and tactile warning is generated by the vehicle tires passing over the rumble strips.

342.2 REFERENCES

Provincial Engineering Memorandum by Design and Contract Standards Office # 2019-03, April 2019 - Updated Policy for Application and Installation of Centreline Rumble Strips.

Ministry Directive, PLNG-B-004, Highway Shoulder Rumble Strip Application and Installation Policy

MTO Bikeway Design Manual (2014)

342.3 TENDER ITEMS

0342-0130	Centreline Rumble Strips - Asphalt	(variation, m, PQP)
0342-0140	Shoulder Rumble Strips - Asphalt	(variation, m, PQP)
0342-0150	Shoulder Rumble Strips for Bicycle Buffer Zones-Asphalt	(variation, m, PQP)

342.4 SPECIFICATIONS

The requirements for SRS and CRS are contained in OPSS.PROV 342.

342.5 SPECIAL PROVISIONS

Refer to Chapter E of this manual to review the applicable standard special provisions.

342.6 STANDARD DRAWINGS

Applicable standard drawings are contained in the 500 series of the Ministry of Transportation of Ontario Drawings (MTOD).

342.7 DESIGN

Design considerations for CRS are found in Provincial Engineering Memorandum by Design and Contract Standards Office # 2019-03, April 2019 - Updated Policy for Application and Installation of Centreline Rumble Strips.

Design considerations for SRS are found in Ministry Directive, PLNG-B-004, Highway Shoulder Rumble Strip Application and Installation Policy.

Design considerations for SRS in bicycle buffer zones are found in the MTO Bikeway Design Manual (2014).

342.8 COMPUTATION

These are Plan Quantity Payment items.

Quantities are computed in metres and measured horizontally from end to end along the centreline of the installation. Gaps in the rumble strip installation are not included in the measured length. Gaps include, but are not limited to: entrance and intersection locations; entrance and exit terminal locations; and right turn lane and taper locations.

The standard gaps (i.e. 3.6 m) provided in SRS installations within bicycle buffer zones are included in the measured length.

Example:

SRS are installed on both sides of a 2 km section of a two-lane undivided highway. There are four entrances and one side street on the left side of the highway while there are three entrances and one side street on the right side of the highway. On the same highway CRS are also installed.

SRS (left) = 2000 m

Deductions for four approaches and departures	= 4x60 + 4x30	= 360 m
Deductions for four entrances width	= 4x10	= 40 m
Deduction for one side-street approach and departure	= 1x2x30	= 60 m
Deduction for one side-street width, taper and parallel	= 1x120	= 120 m

SRS installed on left-side = 2000 - 360 - 40 - 60 - 120 = 1420 m

SRS (right) = 2000 m

Deduction for three approaches and departures	= 3x60 + 3x30	= 270 m
Deduction for three entrances width	= 3x10	= 30 m
Deduction for one side-street approach and departure	= 1x2x30	= 60 m
Deduction for one side-street width, taper and parallel	= 1x120	= 120 m

SRS installed on right-side = 2000 - 270 - 30 - 60 - 120 = 1520 m

SRS (total) = 1420 m + 1520 m = 2940 m

CRS = 2000 m

Deduction for seven entrances approach and departure	= 7x2x10	= 140 m
Deduction for seven entrances widths	= 7x15	= 105 m
Deduction for two side streets approach and departure	= 2x2x10	= 40 m
Deduction for two side street widths	= 2x40	= 80 m

CRS (total) = 2000 - 140 - 105 - 40 - 80 = 1635 m

342.8.1 Sources of Information

Locations for rumble strip installation are determined in accordance with the directives, policies, and guidelines listed in Section 342.2.

342.9 DOCUMENTATION

CRS quantities and locations are indicated on the "Quantities - Miscellaneous" sheets under the appropriate column heading, showing station to station and location along centreline. Include the applicable MTOD number in the column heading.

SRS quantities and locations are indicated on the "Quantities-Miscellaneous" sheets under the appropriate column heading, showing station to station limits and location, left or right of centreline. Include the applicable MTOD number in the column heading.

For SRS in bicycle buffer zones, additional quantities for the outer pavement marking edge line beyond the SRS will need to be calculated and included under the appropriate pavement marking item.

342.9.1 Documentation Accuracy

Station and quantity entries are recorded to the nearest whole metre.