

B305 - GRANULAR SEALING - OPSS 305305.1 GENERAL

Granular sealing is a method to control surface erosion of granular shoulders and roundings.

The granular sealing is applied:

- On granular shoulder, 100 mm inside the edge of pavement to the outside edge of rounding, or as specified.
- On paved shoulders with guide rail, 100 mm inside the edge of the narrowed paved shoulder to the outside edge of rounding, or as specified.
- On paved shoulders without guide rail, 100 mm inside the edge of paved shoulder to the outside edge of rounding, or as specified.

Alternatives such as shouldering materials more resistant to erosion (eg. 100% crushed aggregate or reclaimed asphalt pavement) may be cost effective and recommended by the Regional Geotechnical Section on a project and location specific basis. Locations may include directly adjacent to waterbodies to mitigate the environmental risks associated with granular sealing.

305.2 REFERENCES - N/A305.3 TENDER ITEMS

Granular Sealing (variation, m2, PQP)
Granular Sealing (variation, kg, non-PQP)

305.4 SPECIFICATIONS

The requirements for granular sealing are contained in OPSS 305.

305.5 SPECIAL PROVISIONS

The designer should refer to Chapter "E" of this manual to review the applicable Special Provisions.

305.6 STANDARD DRAWINGS

Treatment of granular sealing for erosion control is shown on the Ontario Provincial Standard Drawings in the 200 series.

305.7 DESIGN

There are four sealant types:

- Type I-a RC-30 and MTO primer according to OPSS 1102
- Type I-b Emulsified asphalt primer according to OPSS 1103
- Type II Solvent-free emulsified asphalt according to OPSS 1103
- Type III Tall oil pitch (TOP) emulsion according to OPSS 2510

The type of sealant (Type I, Type II, or Type III) to be used at each location is specified. When Type I is specified, the contractor chooses Type I-a or Type I-b.

Type III should only be applied to Granular A, S, or M aggregates.

Due to environmental concerns, Type I or Type II granular sealing may not be suitable for application in or directly adjacent to environmentally sensitive areas or within 30 m of waterbodies. Type III sealer may be more appropriate at such locations.

The designer should determine the locations where a particular sealer type (i.e. I-a, I-b, II, or III) should be specified, and for locations where a particular sealer type is not required, specify all the sealer type options available to the Contractor.

The designer may choose the appropriate sealer on the basis of the guidelines in this document and the expected number of years before the shoulder would need to be re-sealed, as follows:

Sealer Type	Expected # of Years Before Re-Sealing
I-a, I-b	4
II	3
III	2

Notes:

1. The expected # of years, with the exception of Type III, is based on only occasional vehicle trafficking.
2. Type III should only be specified at locations with minimal risk of vehicle trafficking.
3. All sealers should perform behind guiderail for at least 3 years when applied according to the manufacturer’s requirements.

Hand-spraying is required around guide rails, road markers, utility boxes, in or adjacent to environmentally sensitive areas and within 30 m of waterbodies, and any tight areas where spray from a machine's nozzle bar could be blocked and where the application rate is likely to be inadequate. Machine-spraying may be used in all other areas.

The use of and type of granular sealing to be used may be recommended in the Pavement Design Report, or may be determined in consultation with geotechnical and environmental project staff.

305.8 COMPUTATION

This tender item can be either:

- a Plan Quantity Payment (PQP) item with a unit of measure by the square metre;
- an actual measured item with a unit of measure by the kilogram.

When the unit of measure is by the square metre, the area to be treated is calculated by multiplying the length times the width as per applicable standards or typical sections measured horizontally. The width used in the calculation shall be kept constant if possible and, shall reflect the requirement that sealer applied beside an existing roadway wearing surface be overlapped 100 mm onto the wearing surface.

When the unit of measure is by the kilogram then areas for machine spraying or hand spraying shall be determined as specified above. These areas will be multiplied by the specified application rates per square metre.

305.9 DOCUMENTATION

305.9.1 Contract Drawings

At locations where the standard drawings for granular sealing are not adequate, drawing details may be used to show the requirements.

305.9.2 Quantity Sheets

When the unit of measure for this item is by the square metre, then the individual quantity entries are shown in square metres on the "Quantities - Miscellaneous" sheet.

When the unit of measure for this item is by the kilogram, then the individual quantity entries are shown in kilograms on the "Quantities - Miscellaneous" sheet.

Locations are documented by station to station limits and offset left or right of the roadway centreline.

Granular sealing is a variation item. Quantities are documented in separate columns for each type of sealant and method of application. By item variation, the sealer type or sealer type options (Type I, Type II, Type III, Type I or Type II, Type II or Type III, or Type I, II or III and method of spray (machine or hand) is specified in the column heading.

The individual column entries are totaled into the tender total which is transferred to the Form of Tender.

305.9.3 Documentation Accuracy

Quantities and Stations on the Quantity Sheet are recorded to the nearest whole number.