



**CONSTRUCTION SPECIFICATION FOR
PRIMING GRANULAR BASE**

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302.01 SCOPE

This specification covers the requirements for surface preparation and application of bituminous primer on a granular base and placement of a sand cover to accommodate traffic.

302.01.01 Specification Significance and Use

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be as specified in the Contract Documents.

302.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

302.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

This specification refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Construction

OPSS 304 Single and Double Surface Treatment

Ontario Provincial Standard Specifications, Material

OPSS 1006 Aggregates - Surface Treatment

OPSS 1102 Liquid Asphalt

OPSS 1103 Emulsified Asphalt

Ministry of Transportation Publications

MTO Laboratory Testing Manual

Ontario Traffic Manual (OTM):
Book 7 - Temporary Conditions

302.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Appurtenances mean maintenance hole, catch basin, valve chamber, and water valve covers and similar Utility access covers located within the pavement portion of the roadway.

Lot means the quantity of work completed with a tanker truck shipment of primer.

Primer means the emulsified asphalt or low viscosity liquid asphalt sprayed on a prepared granular base.

Sand Cover means an aggregate applied over the primer to blot the primer and permit the passage of traffic.

302.05 MATERIALS

302.05.01 Primer

Primer shall consist of one or more of the following types of asphaltic materials:

- a) Emulsified Asphalt Primer according to OPSS 1103.
- b) MTO Primer or RC-30 according to OPSS 1102.

302.05.02 Sand Cover Aggregate

Aggregate shall be a Class 4 aggregate according to OPSS 1006.

302.06 EQUIPMENT

302.06.01 Pressure Distributor

The pressure distributor shall be designed and manufactured to spray primer uniformly on the road surface. The pressure distributor shall be capable of applying primer at the specified rates and in a continuous and uniform manner both longitudinally and transversely for a full lane width.

302.06.02 Mechanical Aggregate Spreader

The mechanical aggregate spreader shall be designed and manufactured to be self-propelled and capable of continuously and uniformly distributing aggregate on the primed granular base at the specified application rate.

302.06.03 Pilot Vehicle

The pilot vehicle shall be equipped according to the requirements of the OTM, Book 7.

302.06.04 Rollers

Rollers shall be according to OPSS 304.

302.07 CONSTRUCTION

302.07.01 Operational Constraints

Primer shall not be applied when the ambient temperature at the work location is less than 10 °C or when climatic conditions preclude the curing of the primer.

Primer shall not be applied prior to May 15th south of a line through Pembroke, Magnetawan, and Pointe au Baril Station and not prior to June 1st north of the line.

Emulsified primers shall not be applied after September 1st except with the approval of the Contract Administrator. .

The placing of aggregate shall be terminated one hour before sunset.

302.07.02 Sampling

302.07.02.01 Primer

The Contractor shall provide primer field samples for quality assurance (QA) testing purposes when specified in the Contract Documents.

The work shall include sampling, labelling, packaging, and delivery of samples to the laboratory designated in the Contract Documents within 5 Business Days.

Each liquid asphalt primer sample shall consist of a one-litre quantity of material. The sample containers for liquid asphalt primer samples shall be new epoxy-lined triple tight cans.

Each emulsified asphalt primer sample shall consist of 2 four-litre quantity of material. The sample containers for emulsified asphalt primer samples shall be new triple tight cans.

Sample containers shall be supplied by the Contractor. Sample labels supplied by the Contract Administrator shall be used to identify all samples.

302.07.02.02 Sand Cover Aggregate

The Contractor shall provide sand cover aggregate samples for QA testing purposes when specified in the Contract Documents.

302.07.03 Demonstration of Primer and Aggregate Application Rates

The Contractor shall demonstrate to the Contract Administrator satisfactory compliance to the specified application rates of primer and aggregate. At the Contract Administrator's option, this compliance may include a minimum 300 m length, one lane width trial section to ensure that the primer and aggregate are applied at the specified rate.

302.07.04 Longitudinal and Transverse Joints

Joints shall be constructed so that granular base is fully covered with primer and the overlap of primer and sand cover is minimal.

302.07.05 Protection of the Work

Traffic shall not be allowed on the primed granular base until the sand cover has been applied. Primed surfaces damaged by traffic shall be repaired by the Contractor.

302.07.06 Surface Preparation

The surface shall be free of standing water. The surface shall be prepared by dampening, fine grading, and compacting and finished rolled using a steel-drum roller to ensure a compacted smooth and float free surface immediately prior to the application of primer.

302.07.07 Application of Primer

Primer application temperatures shall be according to OPSS 1102 and OPSS 1103.

After the surface has been prepared, the primer shall be uniformly sprayed on the granular base at the rate specified in the Contract Documents.

The application of primer shall terminate at the same station for both lanes at the end of each day.

All roadway appurtenances within the area to be surfaced shall be properly covered and protected immediately prior to priming.

302.07.08 Application of Sand Cover

When specified in the Contract Documents, a sand cover shall be applied following the application of primer. A minimum curing time of 20 minutes for the primer shall be provided before sand cover aggregate is applied. Sand cover aggregate shall be uniformly applied by means of a mechanical aggregate spreader at the rate of $11 \pm 1.0 \text{ kg/m}^2$.

Two passes of a pneumatic-tired roller shall be used to seat the aggregate.

302.07.09 Traffic Convoy

When specified in the Contract Documents, the Contractor shall convoy traffic according to OTM, Book 7.

The pilot vehicle shall guide one-way traffic through or around construction. The maximum speed of the convoy shall be 30 km/h. Convoys shall be maintained for a minimum of one hour after application of the sand cover, or longer, if directed by the Contract Administrator.

302.07.10 Management of Excess Material

Management of excess material shall be as specified in the Contract Documents.

302.08 QUALITY ASSURANCE

When specified in the Contract Documents, testing of the primer shall be conducted by the Contract Administrator, using current LS test methods of the MTO Laboratory Testing Manual or ASTM test procedures as required by OPSS 1102 or 1103.

302.09 MEASUREMENT FOR PAYMENT

302.09.01 Actual Measurement

302.09.01.01 Primer

Primer shall be measured by mass in kilograms as specified in the Contract Documents.

302.09.01.02 Sand Cover Aggregate

Measurement of sand cover shall be by mass or volume as specified in the Contract Documents.

302.09.01.02.01 By Mass

Sand cover aggregate applied to the road shall be measured by mass in tonnes as specified in the Contract Documents.

302.09.01.02.02 By Volume

Sand cover aggregate applied to the road shall be measured by volume in cubic metres, loose, by pre-determined truck capacities. The pre-determined capacity of each truck shall be that computed from its box dimensions.

Loading of each truck shall be to full pre-determined capacity. The Contractor shall not be required to load trucks in excess of this capacity to allow for bulking, and no deduction shall be made for any settlement of the load during transportation, provided that such settlement is not caused by spillage or leakage.

Each truck shall be uniquely and readily identifiable.

302.09.01.03 Traffic Convoy

The measurement for traffic convoy shall be in hours based on the number of hours that the pilot vehicle is convoying traffic.

302.10 BASIS OF PAYMENT

- 302.10.01 Primer - Item**
- Sand Cover Aggregate - Item**
- Traffic Convoy - Item**

Payment at the Contract price for the above items shall be full compensation for all labour, Equipment, and Material to do the work.

Primed surfaces damaged by traffic shall be repaired at no cost to the Owner.

Appendix 302-A, Commentary for OPSS.MUNI 302, November 2016 FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS

Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

Designer Action/Considerations

The designer should specify the following in the Contract Documents:

- Rate of application of primer. (302.07.07)

The designer should determine if the following is required and, if so, specify it in the Contract Documents:

- Frequency and type of QA testing required. (302.07.02.01 and 302.07.02.02)
- Location of laboratory for delivery of samples. (302.07.02.01)
- Sand cover. (302.07.08)
- Traffic convoy requirements. (302.07.09)
- Testing of the primer. (302.08)
- Measurement for payment of sand cover aggregate by mass or volume. (302.09.01.02)

Priming of the granular base is required for the application of single surface treatment or one lift of hot mix asphalt.

Sand cover is required when traffic travels on the primed granular base prior to placement of a surface.

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Related Ontario Provincial Standard Drawings

No information provided here

