

**03005 Granular Base Course****Index**

03005-1	Description	2
03005-2	Materials	2
03005-3	Approval for Base Course	2
03005-4	Construction	3
03005-5	Measurement	5
03005-6	Payment	5

**Tables**

Table 1: Material Requirements .....	2
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**\*Bold text denotes a change in this version (February 2022)**

**03005-1**      **Description**

The work shall include the supplying of all labour, plant equipment and materials required to construct granular base course at the location and in conformity with the line, grade and dimensions shown on the plans or as designated by the Engineer.

**03005-2**      **Materials**

The Contractor shall supply the base course material. Refer to the Aggregates Specifications 03001-3.2.2 “Base Aggregate”.

The material passing a 400 µm Sieve shall have a Plasticity Index from 0 to 6.

The material shall consist of fine graded mixtures of sand, silt, and clay, and shall be free from organic or other deleterious material and meet the following requirements:

Table 1: Material Requirements

<b>Sieve Designation</b>	<b>Percent by Weight Passing Canadian Metric Standard Sieves</b>	
	Binder	Filler
5.0 mm	100	100
400 µm	100	90
71 µm	50	25
Plasticity Index	10	0

Reclaimed Asphalt Pavement (RAP) may be blended with base granular materials, in a manner approved by the Engineer, and re-used in a new construction as granular base to a maximum amount of 30% by mass. The blended base granular shall not contain more than 1.7% by mass asphalt cement as determined by ASTM D2172.

The allowable moisture content of the base course shall not exceed the optimum moisture content when delivered to the road.

**03005-3**      **Approval for Base Course**

A representative sample of the base course material shall be supplied to an approved Testing Laboratory. The sample shall contain not less than 35 kg.

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The following tests shall be performed:

1. Wash Sieve Analysis
2. Plasticity Index
3. C.B.R. Value
4. Standard Proctor Compaction Test
5. Percentage crush of material retained on the 5 mm Sieve.

One copy of the test results shall be submitted to the Engineer at least 7 days before base course construction commences. Base course construction shall not commence unless the material is approved by the Engineer.

The cost of submitting samples and testing by the Testing Laboratory shall be borne by the Contractor until the material is approved by the Engineer. After the material is approved, partial subsequent testing will be carried out at the expense of the Contractor in accordance with the requirements of Testing and Inspection (Specification 03020).

Preliminary approval of the material shall not constitute general acceptance of the stockpile, deposit or source of supply.

#### **03005-4     Construction**

Materials shall be handled in a manner such that segregation of the coarser and finer fractions will not occur.

Base aggregate shall be stockpiled after crushing. Stockpiles shall be constructed in accordance with the requirements for stockpiling aggregates (Specification 03015).

The thickness of any compacted base course lift shall not be less than 75 mm and not greater than 150 mm.

Oversize material shall not be incorporated into the base course.

RAP blended granular base shall not be placed within the top 150mm of the granular base course layer.

Base course shall not be spread and compacted if the atmospheric temperature is 2°C and falling.

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If excess moisture exists in the base course, it shall be dried to the optimum moisture content as determined by the Standard Proctor Compaction Test.

If necessary for compacting, water shall be added. The optimum moisture content will be determined by the Standard Proctor Compaction Test. Watering and compaction shall be controlled to prevent pumping of fines to the surface or washing fines away.

Each lift shall be compacted to not less than 100% of the maximum density as determined by the Standard Proctor Compaction Test. The density of this section will be considered satisfactory when:

1. Test results average not less than 100% of maximum density; and,
2. All individual test results are greater than 98% of maximum density.

This shall also include base placed under walks and curbs when the grade preparation for the walks and curbs is constructed in conjunction with the roadway.

Once passing density, each lift of granular base shall be proof rolled with a heavy piece of equipment of sufficient axle load to expose any soft spots. Acceptable heavy equipment shall be approved by the Engineer. There will be no direct payment for proof-rolling, and it shall be an integral part of base course acceptance. If there is any visual movement the soft spots detected by proof-rolling shall be repaired at the Contractor's expense. If the movement is due to the *in situ* soils below the subgrade preparation the Engineer will provide direction. Condition of soils below the subgrade preparation are the responsibility of the Engineer.

Failures in the subgrade, subbase course or base course which develop on a section of road upon which base course has been deposited, shall be repaired at the expense of the Contractor.

Base course shall be spread by motor graders or other equipment approved by the Engineer.

Any ruts or irregularities formed on the surface of any layer during compaction shall be bladed smooth during compaction operations. The Contractor shall spread and shape each layer to the cross section shown on the drawings or as designated by the Engineer. The finished surface of the final layer shall conform to the longitudinal grade within a

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tolerance of 10 mm, but not uniformly high or low, and shall have no depressions or high areas more than 6 mm under a straight edge 3 m long when placed in any direction.

A prime coat shall be placed on the finished final lift of base course in accordance with the requirements for Asphalt Prime, Tack and Flush Coat (Specification 04025).

Streets, roads and lanes used for hauling material, which are damaged, shall be repaired by the Contractor at the Contractor's expense.

The sewers and manholes shall be cleaned thoroughly using a high pressure sewer flusher. After base gravel placement, all dirt, sand, rocks and other solids resulting from the cleaning operation shall be removed by vacuum truck at the downstream manhole of the section being cleaned.

All accumulations of debris shall be hauled by the Contractor to the pollution control plant for disposal. The Contractor shall be responsible for cleaning and or any damages that result from debris entering the existing sewer system.

The Contractor shall be responsible for removing all debris from catch basins.

**03005-5      Measurement**

Granular base course will be measured in tonnes or square metres as specified.

**03005-6      Payment**

Payment for granular base course will be at the contract unit price per tonne, **cubic metre**, or square metre. The unit price will be full compensation for loading, hauling, dumping, spreading, watering, aerating, compacting, and proof-rolling. The unit price will also be full compensation for adding binder and/or filler sand.

**End of Specification 03005**

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