

**PART 1 - GENERAL**

- 1.1 RELATED SECTIONS
- .1 Section 310516 – Aggregate Materials
  - .2 Section 321123 – Aggregate Base Courses
  - .3 Section 312333.01 – Excavating, Trenching and Backfilling
- 1.2 BASIS OF PAYMENT
- .1 Item No. C-010: Supply and place Granular “B” Type II Subbase - The supply and placement of Granular “B”, Type II will be measured for payment in tonnes of material incorporated into the construction of roadways and parking lots and accepted by the Departmental Representative. The unit price bid will be full compensation for the supply, delivery, placing, shaping, compaction, watering, dust control, and all associated works.
- 1.3 REFERENCES
- .1 American Society for Testing and Materials (ASTM)
    - .1 ASTM C 117-95, Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
    - .2 ASTM C 131-96, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
    - .3 ASTM C 136-96a, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
    - .4 ASTM D 422-63(1998), Standard Test Method for Particle-Size Analysis of Soils.
    - .5 ASTM D 698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).
    - .6 ASTM D 1557-00, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft³) (2,700kN-m/m³).
    - .7 ASTM D 1883-99, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
    - .8 ASTM D 4318-00, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
  - .2 Canadian General Standards Board (CGSB)
    - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
    - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
- 1.4 WASTE MANAGEMENT AND DISPOSAL
- .1 Divert unused granular material from landfill to local quarry as approved by Departmental Representative.

**PART 2 - PRODUCTS**

- 2.1 MATERIALS
- .1 Granular sub-base material: in accordance with Section 310516 - Aggregate Materials and following requirements:
    - .1 Crushed, pit run or screened stone, gravel or sand to OPSS Granular B Type II specifications.

- .2 Gradations to be within OPSS limits.

**PART 3 - EXECUTION**

3.1 PLACING

- .1 Place granular sub-base after subgrade is inspected and approved by Departmental Representative.
- .2 Construct granular sub-base to depth and grade in areas indicated.
- .3 Ensure no frozen material is placed.
- .4 Place material only on clean unfrozen surface, free from snow or ice.
- .5 Place granular sub-base materials using methods which do not lead to segregation or degradation.
- .6 For spreading and shaping material, use spreader boxes having adjustable templates or screeds which will place material in uniform layers of required thickness.
- .7 Place material to full width in uniform layers not exceeding 150 mm compacted thickness. Departmental Representative may authorize thicker lifts (layers) if specified compaction can be achieved.
- .8 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
- .9 Remove and replace portion of layer in which material has become segregated during spreading.

3.2 COMPACTION

- .1 Compaction equipment to be capable of obtaining required material densities.
- .2 Efficiency of equipment not specified to be proved at least as efficient as specified equipment at no extra cost and written approval must be received from Departmental Representative before use.
- .3 Equipped with device that records hours of actual work, not motor running hours.
- .4 Compact to density of not less than 100% maximum dry density in accordance with ASTM D 698 ASTM D 1557.
- .5 Shape and roll alternately to obtain smooth, even and uniformly compacted sub-base.
- .6 Apply water as necessary during compaction to obtain specified density.

3.3 PROOF ROLLING

- .7 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Departmental Representative.
- .8 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.
- .1 For proof rolling use standard roller of 45400 kg gross mass with four pneumatic tires each carrying 11350 kg and inflated to 620 kPa. Four tires arranged abreast with centre to centre spacing of 730 mm maximum.
- .2 Obtain approval from Departmental Representative to use non-standard proof rolling equipment.
- .3 Proof roll at level in sub-base as indicated. If non-standard proof rolling equipment is approved, Departmental Representative to determine level of proof rolling.
- .4 Make sufficient passes with proof roller to subject every point on surface to three separate passes of loaded tire.
- .5 Where proof rolling reveals areas of defective subgrade:
  - .1 Remove sub-base and subgrade material to depth and extent as directed by Departmental Representative.
  - .2 Backfill excavated subgrade with common material and compact in accordance with sub-base material and compact in accordance with this section.
  - .3 Replace sub-base material and compact.
- .6 Where proof rolling reveals areas of defective sub-base, remove and replace in accordance with this section at no extra cost.

3.4 SITE TOLERANCES

- .1 Finished sub-base surface to be within 10 mm of elevation as indicated but not uniformly high or low.

3.5 PROTECTION

- .1 Maintain finished sub-base in condition conforming to this section until succeeding base is constructed, or until granular sub-base is accepted by Departmental Representative.

**\*\*\* END OF SECTION \*\*\***