

Part 1 General

1.1 MEASUREMENT AND PAYMENT

- .1 Measure compaction of granular base in hours for each type of compaction unit employed as shown on recording devices approved in writing by Departmental Representative.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C136-14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .2 ASTM D698-12e2, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).
 - .3 ASTM D1557-12e1, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft³) (2,700kN-m/m³).
 - .4 ASTM D1883-16, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
 - .5 ASTM D4318-17, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit aggregate and other materials to consultant for review.
- .2 Sustainable Design Submittals:
 - .1 Erosion and Sedimentation Control: submit copy of erosion and sedimentation control plan in accordance with authorities having jurisdiction.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Storage and Handling Requirements:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
 - .3 Store cement in weathertight bins or silos that provide protection from dampness and easy access for inspection and identification of each shipment.

Part 2 Products

2.1 MATERIALS

- .1 Granular base: material in accordance with Authorities Having Jurisdiction and following requirements:

- .1 Crushed stone or gravel.
- .2 Submit sieve analysis of materials for approval by consultant.

Part 3 Execution

3.1 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to [requirements of authorities having jurisdiction.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 PLACEMENT AND INSTALLATION

- .1 Place granular base after sub-base surface is inspected and approved in writing by Consultant.
- .2 Placing:
 - .1 Construct granular base to depth and grade in areas indicated.
 - .2 Ensure no frozen material is placed.
 - .3 Place material only on clean unfrozen surface, free from snow and ice.
 - .4 Place material using methods which do not lead to segregation or degradation of aggregate.
 - .5 Place material to full width in uniform layers not exceeding 150 mm compacted thickness.
 - .1 Consultant may authorize thicker lifts (layers) if specified compaction can be achieved.
 - .6 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
 - .7 Remove and replace that portion of layer in which material becomes segregated during spreading.
- .3 Compaction Equipment:
 - .1 Ensure compaction equipment is capable of obtaining required material densities.
 - .2 Equipped with device that records hours of actual work, not motor running hours.
- .4 Proof rolling:
 - .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.

- .2 Obtain written approval from Consultant to use nonstandard proof rolling equipment.
- .3 Proof roll at level in granular base as indicated.
 - .1 If use of nonstandard proof rolling equipment is approved, Consultant 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 base, sub-base and subgrade material to depth and extent as directed by Consultant.
 - .2 Backfill excavated subgrade sub-base material and compact in accordance with Section 32 11 16.01 - Granular Sub-Base.
 - .3 Replace sub-base material and compact in accordance with Section 32 11 16.01 - Granular Sub-base.
 - .4 Replace base material and compact in accordance with this Section.
- .6 Where proof rolling reveals defective base or sub-base, remove defective materials to depth and extent as directed by Consultant and replace with new materials in accordance with Section 32 11 16.01 - Granular Sub-base and this section at no extra cost.

3.3 SITE TOLERANCES

- .1 Finished base surface to be within plus or minus 10 mm of established grade and cross section but not uniformly high or low.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with the Section 01 74 11 - Cleaning:
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
- .3 Waste Management: separate waste materials for reuse/recycling.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
 - .2 Divert unused granular material from landfill to local quarry approved by Consultant.

3.5 PROTECTION

- .1 Maintain finished base in condition conforming to this Section until succeeding material is applied or until acceptance by Consultant.

END OF SECTION