

PART 1 - GENERAL

- 1.1 Related Work .1 Refer to other Specification Sections for related information.
- 1.2 Reference Standards .1 ASTM D698-12e2 (or latest edition) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft) (600 kN-m/m<sup>3</sup>) - Method C.
- 1.3 Measurement for Payment .1 Granular sub-base will be measured in accordance with **Section 01 29 00**.
- .2 Backfill will be measured in accordance with **Section 01 29 00**.

PART 2 - PRODUCTS

- 2.1 Materials .1 Granular sub-base material to **Section 31 05 17** and following requirements:
- .1 Crushed stone or gravel consisting of hard durable angular particles free from clay lumps, cementation, organic material, frozen material and other deleterious materials.
- .2 Type 2 (previously Class 'C') granular material gradation will be within the following limits:

ASTM SIEVE SIZE	% PASSING BY MASS
56 mm	100
28 mm	60 - 80
5 mm	25 - 45
0.160 mm	0 - 10

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PART 3 - EXECUTION

3.1 Inspection of  
Existing Sub-Base  
Surface

- .1 Do not place new granular sub-base until underlying backfill material is compacted, inspected and approved by the *Departmental Representative*.

3.2 Placing

- .1 Place material only on a clean unfrozen surface, properly shaped and compacted and free from snow or ice.
- .2 Place Type 2 (Class 'C') and backfill 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.
- .3 Shape each layer to a smooth contour and compact to specified density before the succeeding layer is placed.
- .4 Remove and replace portion of a layer in which material has become segregated during spreading.

3.3 Compacting

- .1 Compact to density of not less than 98% maximum dry density in accordance with ASTM D698.
  - .2 Shape and roll alternately to obtain a smooth, even and uniformly compacted sub-base.
  - .3 Apply water as necessary during compaction to obtain specified density. If sub-base is excessively moist, aerate by scarifying with suitable equipment until moisture content is corrected.
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Granular Sub-Base

Page 3

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|                    | .4 | In areas not accessible to rolling equipment, compact to specified density with approved mechanical tampers.               |
| 3.4                |    |  |
| <u>Finish</u>      |    |  |
| <u>Tolerances</u>  | .1 | Finished base surface shall be within plus or minus 10 mm of established grade but not uniformly high or low.              |
|                    | .2 | Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.   |
| 3.5                |    |  |
| <u>Maintenance</u> | .1 | Maintain finished base in a condition conforming to this section until succeeding material is applied or until acceptance. |
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PART 1 - GENERAL

- 1.1 Related Work .1 Refer to other Specification Sections for related information.
- 1.2 Reference Standards .1 ASTM D698-12e2 (or latest edition) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft) (600 kN-m/m<sup>3</sup>) - Method C.
- 1.3 Measurement for Payment .1 Granular base will be measured in accordance with **Section 01 29 00**.

PART 2 - PRODUCTS

- 2.1 Materials .1 Granular Base: Material to **Section 31 05 17** and following requirements:
- .1 Crushed stone or gravel consisting of hard, durable, angular particles, free from clay lumps, cementation, organic material, frozen material and other deleterious materials.
- .2 Type 1 (previously Class "A") granular fill gradation will be within following limits:

ASTM SIEVE SIZE	% PASSING BY MASS
20 mm	100
14 mm	50 - 85
5 mm	20 - 50
0.16 mm	0 - 10
0.080 mm	0 - 7

PART 3 - EXECUTION

- 3.1 Inspection of Underlying Sub-Base .1 Do not place granular base until finished sub-base surface is inspected and approved by *Departmental Representative*.

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- 3.2 Placing
- .1 Place material only on a clean unfrozen surface, properly shaped and compacted and free from snow and ice.
  - .2 Place using methods which do not lead to segregation or degradation of aggregates.
  - .3 Place material to full width in a uniform layer to a minimum of 150 mm compacted thickness.
  - .4 Shape each layer to a smooth contour and compact to specified density before succeeding layer is placed.
- 3.3 Compacting
- .1 Compact to density not less than 98% maximum dry density in accordance with ASTM D698.
  - .2 Shape and roll alternately to obtain a smooth, even and uniformly compacted base.
  - .3 Apply water as necessary during compacting to obtain specified density. If material is excessively moist, aerate by scarifying with suitable equipment until moisture content is corrected.
  - .4 In areas not accessible to rolling equipment, compact to specified density with approved mechanical tampers.
- 3.4 Finish Tolerances
- .1 Finished base surface shall be within plus or minus 10 mm of established grade but not uniformly high or low.
  - .2 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.
- 3.5 Maintenance
- .1 Maintain finished base in a condition conforming to this section until succeeding material is applied or until acceptance.

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PART 1 - GENERAL

- 1.1 Related Work .1 Refer to other Specification Sections for related information.
- .2 Refer to **Section 01 33 00** for Shop Drawing/Submission requirements.
- 1.1 Reference Standards .1 ASTM C127-15 (or latest edition). Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.
- .2 AASHTO T85-14 (or latest edition), Method of Test for Specific Gravity and Absorption of Coarse Aggregate.
- 1.3 Submissions .1 Product Data/Samples:  
.1 Provide samples of materials proposed for the work.
- .2 Methodology:  
.1 Provide methodology for carrying out the work.
- .3 Provide submissions in accordance with **Section 01 33 00**.
- 1.3 Measurement for Payment .1 All classes of Nominal Clear Stone will be measured in accordance with **Section 01 29 00**.
- .2 Prices will include the entire cost of supplying and placing the material in the work, compaction and rough grading as necessary, all as shown on the drawing, and as specified.

PART 2 - PRODUCTS

- 2.1 Materials .1 Nominal Clear Stone
- .1 Material to **Section 31 05 17** and to be a stone consisting of hard, durable particles, free from clay lumps, silt, cementation, organic material, frozen

material and other deleterious foreign materials. Clear stone to be free from splits, seams or defects likely to impair its soundness during handling or under action of water.

.2 Specific gravity of not less than 2.65 when tested to ASTM C127.

.3 200 mm Clear Stone gradation will be within the following limits:

ASTM SIEVE SIZE	% PASSING BY MASS
200 mm	50 - 100
125 mm	0 - 5

.4 50 mm Clear Stone gradation will be within the following limits:

ASTM SIEVE SIZE	% PASSING BY MASS
50 mm	100
25 mm	35 - 45
12.5 mm	0 - 5

### PART 3 - EXECUTION

#### 3.1 Placement

.1 Clear stone can be end dumped provided that no breakage of stone occurs. Any broken rock shall be removed at the contractor's expense.

.2 Place clear stone at maximum density.

#### 3.3 Protection

.1 Take into account anticipated weather conditions and degree of exposure of site in setting requirements for protection.

.2 Schedule and carry out construction so that each phase of work is not left exposed longer than necessary.

- .3 The Contractor should note that the work site is subject to water level variations due to tidal action.
- .4 The Contractor will be responsible to replace any material lost due to storms, tidal erosion or by his own activities.