

PART 1 - GENERAL

1.1 Related  
Sections

- .1 Section 01 74 21 - Construction/Demolition  
Waste Management And Disposal.
- .2 Section 31 05 16 - Aggregate Materials.

1.2 Measurement  
for Payment

- .1 Granular Sub-base: Measure granular sub-base  
in cubic metres place measure (CMPM)  
compacted material incorporated into Work  
and to the thicknesses indicated on the  
drawings. Include all costs in the unit  
price including plant, material and labour.

1.3 References

- .1 American Society for Testing and Materials  
(ASTM)
    - .1 ASTM C 117-06, 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/ft<sup>3</sup>) (600kN-m/m<sup>3</sup>).
    - .6 ASTM D 1557-00, Test Method for  
Laboratory Compaction Characteristics of  
Soil Using Modified Effort  
(56,000ft-lbf/ft<sup>3</sup>) (2,700kN-m/m<sup>3</sup>).
    - .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.
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|-----------------------------------|----|---|
| 1.3 References<br>(Cont'd)        | .2 | (Cont'd)  |
|                                   | .2 | CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.  |
| 1.4 Waste Management and Disposal | .1 | Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal. |
|                                   | .2 | Divert unused granular material from landfill to local facility as approved by Departmental Representative.                       |

## PART 2 - PRODUCTS

- | 2.1 Materials     | .1        | Granular sub-base material: in accordance with Section 31 05 17 - Aggregate Materials and following requirements:   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
|-------------------|-----------|---|-------------------|-----------|-------|--------|---------|-------|---------|-------|---------|-------|----------|------|----------|-----|
|                   | .1        | Crushed, pit run or screened stone, gravel or sand.   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
|                   | .2        | Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1 CAN/CGSB-8.2.  |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
|                   | .3        | Table   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
|                   |           | <table> <tr> <th>Sieve Designation</th> <th>% Passing</th> </tr> <tr> <td>50 mm</td> <td>75-100</td> </tr> <tr> <td>15.9 mm</td> <td>45-80</td> </tr> <tr> <td>4.75 mm</td> <td>25-55</td> </tr> <tr> <td>1.20 mm</td> <td>12-35</td> </tr> <tr> <td>0.300 mm</td> <td>7-20</td> </tr> <tr> <td>0.075 mm</td> <td>3-8</td> </tr> </table> | Sieve Designation | % Passing | 50 mm | 75-100 | 15.9 mm | 45-80 | 4.75 mm | 25-55 | 1.20 mm | 12-35 | 0.300 mm | 7-20 | 0.075 mm | 3-8 |
| Sieve Designation | % Passing |   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
| 50 mm             | 75-100    |   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
| 15.9 mm           | 45-80     |   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
| 4.75 mm           | 25-55     |   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
| 1.20 mm           | 12-35     |   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
| 0.300 mm          | 7-20      |   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
| 0.075 mm          | 3-8       |   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
|                   | .4        | Other Properties as follows:  |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
|                   | .1        | Liquid Limit: to ASTM D 4318, Maximum 25.   |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
|                   | .2        | Plasticity Index: to ASTM D 4318, Maximum 6.  |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |
|                   | .3        | Los Angeles degradation: to ASTM C 131. Max% Loss by mass: 40.  |                   |           |       |        |         |       |         |       |         |       |          |      |          |     |

## PART 3 - EXECUTION

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|-------------|----|--|
| 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.                               |

3.1 Placing  
(Cont'd)

- .3 Ensure no frozen material is placed.
- .4 Place material only on clean unfrozen surface, free from snow or ice.
- .5 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.
- .6 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
- .7 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 Compact to density of not less than 100% corrected maximum dry density.
- .3 Shape and roll alternately to obtain smooth, even and uniformly compacted sub-base.
- .4 Apply water as necessary during compaction to obtain specified density.
- .5 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Departmental Representative.
- .6 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.3 Site Tolerances

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

3.4 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.