

SECTION 112

SELECT GRANULAR BACKFILL

112.1 DESCRIPTION

A. General: This work shall consist of furnishing select granular backfill materials.

B. Related Work:

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| Section 8A | Water |
| Section 11 | Utility Excavation and Backfill |
| Section 12 | Roadway and Drainage Excavation and Embankment |
| Section 20 | Granular Bases and Surfacing |
| Section 64 | Under-Drains |
| Section 65 | Riprap |
| Section 202 | Geosynthetics for Roadways |
| Section 203 | Submittals |

112.2 MATERIALS

A. General: This material shall be free from dirt, vegetable matter, cinder, ashes, refuse, organic matter or other unsuitable foreign substance. Frozen material may not be used.

B. Utility Trench Bedding: Type 1, Type 2 or Type 3 material shall be a crushed rock having a minimum of two fractured faces and meet the following gradation requirements by dry weight:

1. Type 1 - Bedding Material:

| | |
|-----------------------------|---------|
| Passing 1 inch sieve..... | 100% |
| Passing 3/4 inch sieve..... | 90-100% |
| Passing 3/8 inch sieve..... | 20-55% |
| Passing #4 sieve | 0-10% |
| Passing #8 sieve | 0-8% |

2. Type 2 - Foundation Material:

| | |
|-------------------------------|--------|
| Passing a 3 inch sieve..... | 100% |
| Passing a 3/4 inch sieve..... | 50-70% |
| Passing a #4 sieve | 20-40% |
| Passing a #200 sieve | 0-8% |

3. Type 3 - Foundation Material:

| | |
|-----------------------------|-------|
| Passing a 3 inch sieve..... | 100% |
| Passing a 1 inch sieve..... | 0-15% |
| Passing a #4 sieve | 0-8% |

4. Granular Material for Storm Sewer Bedding (angular or non-angular):

- Passing a 1-1/2 inch sieve..... 100%
- Passing a 1 inch sieve..... 95-100%
- Passing a #4 sieve0-75%
- Passing a #200 sieve 0-18%

5. Water and Sewer Service Line Bedding:

PVC water or Sewer services may utilize Type 1 bedding or material listed below.

a) Crusher Fines

- Passing a 3/8 inch sieve..... 100%
- Passing a #4 sieve..... 90-100%
- Passing a #8 sieve50-90%
- Passing a #200 sieve0-25%

b) Pea Gravel and River Rock (non-angular - no crushed faces):

- Passing a 1/2 inch sieve..... 100%
- Passing a 3/8 inch sieve.....85-100%
- Passing a #4 sieve10-30%
- Passing a #8 sieve0-10%
- Passing a #200 sieve0-15%

c) Washed Sand:

- Passing a 3/8 inch sieve..... 100%
- Passing a #4 sieve.....95-100%
- Passing a #8 sieve80-100%
- Passing a #16 sieve50-85%
- Passing a #30 sieve25-60%
- Passing a #50 sieve5-30%
- Passing a #100 sieve0-10%

C. Roadway Backfill and Utility Trench Special Foundation Material: Backfill for stabilization of sub grade shall be a crushed rock with a minimum of two fractured faces and shall meet the following gradations:

1. Type 4 - Foundation Material:

- Passing the 8 inch sieve..... 100%
- Passing the 6 inch sieve.....65-85%
- Passing the 3 inch sieve.....0-20%
- Passing the #200 sieve0-5%

2. Stabilization Rock (Rip-Rap): Shall be per rip-rap specification in Section 65. Stabilization rock shall be a crushed rock with a minimum of two fractured faces.

D. Under-Drain Pipe Trench Backfill Material:

- 1. Rock used as backfill around under-drains shall be clean, washed and sound materials free of excess fines and deleterious materials as specified herein.
- 2. Rock used as backfill for under-drains or edge-drains shall be Type 1 Bedding Material. Rounded river rock meeting the Type 1 Bedding Material gradation shall be acceptable for installations located behind the curb. Installations located under or in front of the curb and gutter shall be a crushed rock with a minimum of two fractured faces.

E. Los Angeles Abrasion: Abrasion loss shall not exceed 40 percent.

F. Sampling and Testing:

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|----------------------------|-------------|
| Sampling | SD 201 |
| Gradation..... | SD 202 |
| Fractured Faces | SD 211 |
| Los Angeles Abrasion | AASHTO T 96 |

Aggregate supplier shall submit sampling and testing results to the City annually for each source. The annual sampling and testing results shall be provided by a certified testing agency and the cost shall be borne by the supplier. Additional testing may be performed by the Engineer with cost borne by the City.

112.3 METHOD OF MEASUREMENT

Measurement for Select Granular Backfill materials, except as further defined below, shall be to the nearest 0.1 ton based on the total weight of the material furnished and installed as determined from valid weigh tickets.

Type 1. Bedding material for water and sewer pipe installations as described in sections 8, 9, and 11 shall be considered as incidental to the pipe being installed. The Contractor, on a regular basis, shall quantify the amount of type 1 bedding material installed along with the corresponding quantity of water and/or sewer pipe. Weekly, or at the direction of the Engineer, the Contractor shall provide weight tickets to verify the quantity of material used. The weigh tickets shall clearly state "Type 1 bedding material, incidental." All stockpiled Type 1 bedding material used for water and sewer pipe installation shall be clearly identified on the project. Type 1 bedding material used as foundation material or for uses other than bedding for water and sewer pipe shall be measured in accordance with the provisions above and shall be measured to the nearest 0.1 ton.

Stabilization Rock (rip-rap) shall be measured and paid for per Section 65. If Stabilization Rock is underlaid or overlaid with a geotextile material, the geotextile material shall be paid for per Section 202, or as otherwise specified in the plans.

Under-Drain Pipe Trench Backfill material shall be measured in accordance with Specification Section 64.4.

112.4 BASIS OF PAYMENT

Payment for Select Granular Backfill materials, except as further defined below, shall be made under the appropriate bid item for the material furnished and installed. Payment for select granular backfill materials shall include all associated costs of excavation and disposal of excavated materials, unless otherwise called for in the plans or detailed specifications.

Type 1 bedding material for water and sewer piping installations as described in specification Sections 8A, 9, and 11 shall be considered incidental to the pipe being installed. All associated costs of excavation and disposal of excavated material shall be considered incidental to the pipe installation, unless called for otherwise in the plans and detailed specifications.

Type 1 bedding material used as foundation material or for a purpose other than pipe bedding shall be paid for in accordance with the provisions above and under the appropriate bid item.

Payment for Under-Drain Pipe Trench Backfill material shall be in accordance with Specification Section 64.5.

END OF SECTION