

ITEM 613.0101--09 - GRAVEL AND PLANTING SOIL MIX

DESCRIPTION

The work shall consist of furnishing, mixing and placing a special gravel and planting soil in conformance with the lines, grades and thicknesses shown in the contract documents or as designated by the Engineer.

MATERIALS

All the requirements of Standard Specification §713-01 Topsoil shall apply except as follows:

1. The pH of the material shall be between 5.5 and 6.8.
2. The organic content shall be not less than 5% or more than 20%. The organic materials used to amend or manufacture topsoil shall conform with the requirements of Standard Specification §713-15 and shall be Type B; Peat Moss.

3. Gradation

- A. Crushed Gravel size 1A - Shall be granite. No limestone shall be used.

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
6.3 mm	90-100
3.2 mm	0-15

- B. Soil - Shall meet the following:

- 1) Not less than 20% nor more than 50% of the soil by weight shall be sand. 100% of the sand fraction shall pass the 2 mm sieve and 100% shall be retained by the 50 μ m sieve.
- 2) Not less than 10% nor more than 40% of the soil by weight shall be silt. The particle size distribution for silt shall be 2 μ m to 50 μ m.
- 3) Not less than 20% nor more than 40% of the soil by weight shall be clay. The particle size distribution for the clay shall include all particles smaller than 2 μ m.
- 4) Prior to acceptance, the contractor shall have the soil analyzed for chemical/nutrient levels using Morgan's Extraction procedure. Samples for this analysis shall be from a portion of the samples used for testing under §713-01. Levels of the following nutrients shall fall within the following limits:

Nitrate	1 to 2.5 ppm
Phosphorus	0.1 to 0.3 ppm
Potassium	6 to 14 ppm
Magnesium	50 to 70 ppm
Manganese	2 to 5 ppm
Iron	0.5 to 2.0 ppm
Zinc	0.004 to 0.1 ppm
Calcium	400 to 800 ppm

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If the soil is deficient in any nutrient, supplementary fertilizer shall be added to meet these requirements.

- 5) Hydrogel/Wetting Agent - Shall be a potassium propenoate-propenamide copolymer hydrogel such as the following, or approved equal:
 - a. Gelscape, Amereq Corporation, 50 North Harrison, Congers, NY 10920
 - b. Soilmoist, JRM Chemical Inc., 13600 Broadway Avenue, Cleveland, OH 44125
 - c. Supersorb, Aquatrols Corporation, 5 North Olney Avenue, Cherry Hill, NJ 08003

- 6) Water - Shall comply with Standard Specification §712-01.

CONSTRUCTION DETAILS

Crushed gravel, soil, hydrogel, organic material, water and any fertilizer necessary to meet the requirements of this specification shall be mixed prior to placement. Mixing shall uniformly blend the specified components in the approximate percentages indicated below and shall meet the additional following requirements:

Approximate ratio of gravel and planting soil mix components:

Gravel, soil, and hydrogel ratios are measured on a dry weight basis. Mixing shall be done under the supervision of Regional Landscape Architect.

<u>Material</u>	<u>Approximate Percentage:</u>
Crushed Gravel	72.5%
Soil	18.1%
Hydrogel	0.3%
Total Moisture	9.1%

Procedure:

- 1. The dry hydrogel shall be mixed with a sufficient amount of water to form a slurry. The slurry shall be allowed to set for at least one hour with periodic agitation/mixing to assure hydration of the hydrogel.
- 2. The hydrogel slurry shall be added to the crushed gravel during mixing before the soil is added. Mixing shall continue for a sufficient time, but not less than ten (10) minutes to assure the crushed stone is completely coated with the hydrogel slurry.
- 3. The soil shall be added to the crushed gravel and slurry mixture in a manner that assures the resulting mix is free of clods. The mixing shall be controlled to assure over mixing does not cause the material to become pelletized.
- 4. The resulting Gravel and Planting Soil Mix (crushed gravel, hydrogel and soil

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mixture) shall be protected from drying prior to placement.

The Gravel and Planting Soil mix shall be placed in the locations specified in the contract documents. It shall be the contractor's responsibility to properly compact the mixture to prevent air pockets and subsequent shifting of soil. The contractor shall also exert proper control over the moisture content of the mixture and other details necessary to obtain satisfactory results. Mixture shall have a moisture content of 7 to 15% (by weight) at all times during installation, or as ordered by Regional Landscape Architect.

Sample of Gravel and Planting Soil Mix shall be provided to Regional Landscape Architect for testing and approval prior to installation. Regional Landscape Architect shall be notified one week prior to the mixing and first installation of Gravel and Planting Soil Mix into the lagging wall.

Whenever the contractor's operations do not conform to the above criteria, the Engineer will prohibit placement of additional material until the contractor takes corrective action.

When the Engineer determines tests are necessary, the contractor shall provide any assistance required to facilitate such tests. Such assistance shall include, but will not be limited to, excavation and backfill of test holes. This work shall be considered to be incidental to construction.

METHOD OF MEASUREMENT

The Gravel and Planting Soil Mix shall be measured per cubic meter measured in place.

BASIS OF PAYMENT

The unit price bid per cubic meter shall include the cost of all labor, materials and equipment, including gravel, topsoil, hydrogel, water, transportation, testing, mixing, fertilizer and all incidental necessary and required to complete the work in accordance with the plans and specifications and as directed by the Engineer.