

**ITEM 208.0103 22                      BIORETENTION AND DRY SWALE SOIL**  
**ITEM 208.0104 22                      LABORATORY TESTING FOR SOIL PHOSPHORUS**  
**CONCENTRATION**

**DESCRIPTION**

This work shall consist of installing Bioretention and Dry Swale Soil in accordance with the contract documents and as directed by the Engineer.

The work shall also consist of having the Bioretention and Dry Swale Soil tested for total soil phosphorus concentration at a qualified laboratory. A qualified laboratory shall be defined as a laboratory that is certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) to test soil for total soil phosphorus.

**MATERIALS**

The following sections of the standard specifications apply:

§703-07                                      Concrete Sand  
§713-01                                      Topsoil, Type A (see exceptions below)

The soil for Bioretention areas and Dry Swales shall be a uniform mix, free of stones, stumps, roots or other objects larger than 51 mm in diameter. The Bioretention and Dry Swale soil shall be visibly free of noxious weeds.

Bioretention and Dry Swale Soil shall be a well blended mixture of three (3) parts sand and one (1) part topsoil, by volume. The Bioretention and Dry Swale Soil shall have a pH range of 5.2 to 7.6, and an organic content of 3-7%.

Sand shall meet the requirements of §703-07 *Concrete Sand*.

Topsoil shall be in accordance with the requirements of §713-01 *Topsoil* for Topsoil Type A, except as follows:

- All topsoil shall be sampled and tested, regardless of the source.
- Sampling of topsoil, amended topsoil, and the Bioretention and Dry Swale Soil shall be done by the Contractor/Supplier. Sampling protocol shall be in accordance with §713-01 *Topsoil*.

Soil amendments to increase organic content shall be peat moss. Peat moss shall be commercially produced and shall be composed of the partly decomposed stems and leaves of any or several species of sphagnum moss. It shall be free from wood, decomposed colloidal residue, and other foreign matter. It shall have a pH range between 3.5 pH - 5.5 pH as determined in accordance with the Association of Official Agricultural Chemists' testing methods. It's water-absorbing ability shall be a minimum of 1100% by weight on an oven-dry basis.

Acceptance of Bioretention and Dry Swale soil will be based upon a material certification that the

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material conforms to the above requirements. The Contractor/Supplier shall provide to the Engineer copies of testing results of the sand gradation, topsoil gradation, organic content percentage of the Bioretention and Dry Swale Soil, and pH of the Bioretention and Dry Swale Soil. These tests are to be paid under the Bioretention and Dry Swale Soil item.

The Contractor shall provide to the Engineer copies of testing results for Soil Phosphorus Concentration. Samples to be submitted to the qualified laboratory shall be obtained in accordance with §713-01 *Topsoil*. Sampling shall be paid under the pay item for Bioretention and Dry Swale Soil. The results of the Soil Phosphorus analysis shall not be used as the basis for material acceptance.

Sampling frequency for total phosphorous shall be one composite sample for the first 75 to 380 cubic meters of soil, and an additional composite sample for each additional 380 cubic meters, or portion thereof. No samples are required for stockpiles of less than 75 cubic meters.

**CONSTRUCTION DETAILS**

Bioretention and Dry Swale Soil shall be installed at the locations and to the depth(s) as shown in the contract documents. Placement of Bioretention and Dry Swale Soil shall be done in lifts of 305 mm to 460 mm. The soil shall be loosely compacted, such as by tamping lightly with a dozer or backhoe bucket. No other materials or substances shall be mixed or dumped within the Bioretention area and Dry Swale that may be harmful to plant growth, or prove a hindrance to planting or maintenance operations.

**METHOD OF MEASUREMENT**

**Bioretention and Dry Swale Soil**

The work will be measured as the number of cubic meters of Bioretention and Dry Swale Soil installed, computed from payment lines shown in the contract documents.

**Laboratory Testing for Soil Phosphorus Concentration**

The work will be measured by the number of soil samples analyzed for Soil Phosphorus Concentration by a qualified laboratory.

**BASIS OF PAYMENT**

The unit price bid for a cubic meter of Bioretention and Dry Swale Soil shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including costs for testing.

The unit price bid for Laboratory Testing for Soil Phosphorus Concentration, shall include the receipted costs of testing, including the cost of the laboratory test(s) and all labor, materials and equipment required to obtain and deliver soil sample(s) to the qualified laboratory plus 5% for profit

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and overhead.