ITEM 604.5017 11 – UNDERGROUND STORMWATER DETENTION SYSTEM

DESCRIPTION

This work shall consist of furnishing and installing an UNDERGROUND STORMWATER DETENTION SYSTEM in accordance with the contract documents and as directed by the Engineer.

MATERIALS

Virgin material for pipe and fitting production shall be high density polyethylene (HDPE) conforming with the minimum requirements of cell classification 424420C for 4- through 10-inch (100 to 250mm) diameters, or 435400C for 12-through 60-inch (300 to 1500mm) diameters, as defined and described in the latest version of ASTM D3350, except that carbon black content should not exceed 4%. The 12- through 60-inch (300 to 1500mm) virgin pipe material shall comply with the notched constant ligament-stress (NCLS) test as specified in Sections 9.5 and 5.1 of AASHTO M294 and ASTM F2306, respectively.

HDPE N-12 ST IB pipe shall have a smooth interior and annular exterior corrugations.
- 4- through10-inch (100 to 250mm) shall meet AASHTO M252, Type S.
- 12- through 60-inch (300 to 1500 mm) shall meet AASHTO M294, Type S or ASTM F2306.
- Manning's "n" value for use in design shall be 0.012.

Joints:
Pipe shall be joined using a bell and spigot joint meeting AASHTO M252, AASHTO M294 or ASTM F2306. The bell shall span over three (3) spigot corrugations. The joint shall be soil-tight and gaskets, when applicable, shall meet the requirements of ASTM F477. Water tight joints shall meet a 10.8 psi laboratory test in accordance with ASTM D3212.

Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly.

Fittings:
Fittings shall conform to AASHTO M252, AASHTO M294, or ASTM F2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the soil-tight joint performance requirements of AASHTO M252, AASHTO M294 or ASTM F2306. Fittings shall not reduce or impair the overall integrity or function of the pipeline system.

Bedding and Liner:
The bedding shall be suitable material, either Class I or Class II, placed and compacted in accordance with ASTM D2321.

A non-woven reinforcement fabric, such as PVC or LLDPE liner material shall be used to prevent water to permeate into the soil. The minimum thickness for either material shall be 30 mil. All liner material shall be prefabricated to eliminate or minimize the need for field seaming.

CONSTRUCTION DETAILS

The contractor shall provide the manufacturer's standard sheets, installation details, and operations and maintenance manuals to the Engineer for approval prior to purchase. Units shall be designed to withstand an HS-25 loading.

Installation shall be in accordance with ASTM D2321 and manufacturer's published installation guidelines with the exception that minimum cover in trafficked areas for 4- through 48-inch (100 to 1200 mm) diameters shall be one foot (0.3 m) and for 60-inch (1500 mm) diameters shall be 2 ft (0.6 m) in single run applications.

METHOD OF MEASUREMENT

This work will be measured as the number of UNDERGROUND STORMWATER DETENTION SYSTEMS satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.

The system shall be free of any debris. The manufacturer's standards and recommendations for installation and cleaning shall be followed.

Seventy-five percent of the price bid for this item will be paid upon satisfactory installation of the system.

The remaining percentage will be paid after the system is satisfactorily cleaned at the completion of the contract.