

## **SECTION 33 30 00 - SEWERS AND DRAINS**

### **PART 1 - GENERAL**

#### 1.01 DESCRIPTION OF WORK:

- A. Provide sanitary sewer and storm drain system as shown on the drawings. This section includes sanitary sewer pipe and house service pipes.

Sanitary sewer pipe  
Storm drain pipes  
Underdrains

- B. Earthwork: Section 31 20 00 (includes excavation, bedding, backfill).

- C. Manholes and Catchbasins: Section 33 39 00.

- D. Concrete: Section 03 30 00

#### 1.02 QUALITY ASSURANCE:

- A. Remove damaged pipe from job site.

#### 1.03 SUBMITTALS:

- A. Manufacturer's product data and installation instructions.

### **PART 2 - PRODUCTS**

#### 2.01 PIPE AND FITTINGS:

- A. General: Furnish fittings of same type and class of materials as pipe.

- B. PVC Non-Pressure Pipe: ASTM D3034 or ASTM D3033, strength requirement SDR 35, push-on joints ASTM D3212, gaskets ASTM F-477.

- C. Underdrain: SDR 35 PVC or Sch. 40 PVC.

#### 2.02 MISCELLANEOUS:

- A. Flexible Adaptors: Neoprene sleeve with stainless steel bands equal to those manufactured by Fernco, Calder Couplings.

- B. Manhole Seals: Segmented neoprene seal with stainless steel bolts equal to "Link-Seal" as manufactured by Thunderline Corp.

- C. Insulation: Equal to Styrofoam SM by Dow Chemical Co., sheet size 2' by 4' by 2" thick.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION OF GRAVITY PIPE AND FITTINGS:**

- A. Methods: Install in accordance with manufacturer's recommendations using a laser beam for line and grade. Secure each length of pipe with bedding before placing next length. Plug open ends when work is suspended. Bed pipe as shown on drawings.
- B. Grade and Line: Lay pipe to line and grade shown on the drawings. If grade is not shown, determine elevations of start and finish points for each run of pipe. Lay pipe to a uniform grade between these points.
- C. Conditions: Lay pipe in the dry. Do not use installed pipe to remove water from work area.
- D. Cleaning: Flush all pipe and remove debris.
- E. Connections to Manholes: Provide short length of pipe so that joints are located within 3 feet of inside surface of manholes.

### **3.02 INSULATION:**

- A. Install as shown on Drawings.

### **3.03 CONNECTION TO EXISTING STRUCTURES:**

- A. Where connections to existing manholes and catchbasins are required, core the existing structure and seal with Manhole Seals or Flexible Adaptors.

### **3.04 TESTING:**

- A. General: Test all pipes after backfilling. Install all house service leads on main line before testing. Perform tests in presence of Engineer or authorized representative of the Sewer District or Public Works Department.
- B. Gravity Sewer-Leakage Tests: Use low-pressure air test as follows:
  - 1. Plug ends of section to be tested.
  - 2. Supply air slowly to the pipe to be tested until the air pressure inside the pipe is 4.0 psi greater than the average back-pressure of any groundwater submerging the pipe.
  - 3. Disconnect air supply and allow a minimum of two minutes for stabilization of pressure.
  - 4. Following stabilization period, measure drop in pressure over a 6-minute test period.

5. Acceptable Drop: No more than 1.0 psi.
- C. Repair and retest: Repair all pipes not passing tests using materials and methods approved by the Engineer, and retest.

\* END OF SECTION 33 30 00 \*