

## SECTION 02614 - VITRIFIED CLAY PIPE

### City of San Diego, CWP Guidelines

#### PART 1 -- GENERAL

##### 1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing vitrified clay pipe sewers and drains as specified and shown, complete in place.

##### 1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
  - 1. Section 02140 Dewatering
  - 2. Section 02200 Earthwork
  - 3. Section 02600 Pipeline Construction
  - 4. Section 02701 Precast Concrete Manholes
  - 5. Section 02730 Sanitary Sewage System Testing

##### 1.3 STANDARD SPECIFICATIONS

- A. Except as otherwise indicated in this Section of the Specifications, the CONTRACTOR shall comply with the Standard Specifications for Public Works Construction (SSPWC), as specified in Section 01090 - REFERENCE STANDARDS.

##### 1.4 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:
  - 1. ASTM C 12 Practice for Installing Vitrified Clay Pipe Lines
  - 2. ASTM C 301 Method of Testing Vitrified Clay Pipe
  - 3. ASTM C 425 Compression Joints for Vitrified Clay Pipe and Fittings
  - 4. ASTM C 700 Vitrified Clay Pipe, Extra Strength, Standard Strength and Perforated
  - 5. ASTM C 828 Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines

##### 1.5 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:
  - 1. Product drawings and data for pipe, joints, and gaskets.

2. Hydrostatic Test Reports
3. Three-Edge Bearing Strength Test Reports

#### 1.6 OWNER'S MANUAL

- A. The following shall be included in the OWNER'S MANUAL in compliance with Section 01300.
  1. An affidavit of compliance, certified by the manufacturer, that the proposed pipe, joints, and gaskets comply with the requirements of this section.

#### 1.7 FACTORY INSPECTION AND TESTS

- A. The CONTRACTOR shall be responsible for all costs associated with inspection and testing of materials, products, or equipment at the place of manufacture. This shall include costs for travel, meals, lodging, and car rental for [two] OWNER-designated inspectors for [ ] days required to complete such inspections or observations exclusive of travel days, if the place of manufacture, fabrication and factory testing is more than fifty (50) miles outside the geographical limit of the City. The CONTRACTOR shall not be responsible for salary or salary-related costs of the inspectors. The CONTRACTOR shall comply with the requirements of Section 01400.
- B. All pipe shall be subject to inspection at the factory. The CONTRACTOR shall notify the CONSTRUCTION MANAGER in writing of the manufacturing start date not less than 14 days prior to the start of manufacture.
- C. **Testing:** All pipe shall be subject to a hydrostatic pressure test and a 3-edge bearing test at the factory. The CONSTRUCTION MANAGER will select pipe sections for testing according to Subsection 207-8.5 of SSPWC. Testing shall be performed in accordance with ASTM C 301 at no increased cost to the OWNER. The acceptance criteria and remedy of Subsection 207-8.5 shall apply.

### PART 2 -- PRODUCTS

#### 2.1 PIPE AND FITTINGS

- A. All pipe and fittings shall conform to the following requirements:
  1. Pipe and fittings shall be the size indicated, be the strength type, and shall conform to the requirements of SSPWC Subsection 207-8.2 and the requirements herein.
  2. Perforated clay pipe shall be the extra strength type and shall conform to the requirements of ASTM C 700; provided, that the pipe shall have not less than 4-rows of 1/4-inch holes spaced approximately 3 inches on centers, measured along the axis of the pipe. All of the holes shall be located in the lower 160 degrees of the pipe.
  3. The imperfection criteria in SSPWC Subsection 207-8.2.3 and the following shall apply. Sections of pipe with imperfections exceeding said criteria shall be rejected.
    - a. No blisters, lumps, pits or flakes shall occur on the outside of the spigot or the barrel or the inside of the socket.
    - b. No single crack in the barrel shall be longer than 3 inches or shall penetrate more than 20 percent of the wall thickness. No crack shall be wider than 1/32 inch.

- c. No pipe shall have tramp clay, grog, or foreign matter which is permanently fused to the interior or exterior surface.
- B. Joints:
- 1. Except where open joints are indicated, joints in vitrified clay pipe shall be bell and spigot compression joint for all diameters, or a synthetic rubber collar with stainless steel or plastic shear ring and stainless steel take-up clamps, bolts, and nuts, for plain-end pipe up to 12-inch size, meeting the requirements of ASTM C 425.

### **PART 3 -- EXECUTION**

#### **3.1 GENERAL**

- A. The sewer shall be constructed to the alignment and grade indicated. The grade line on the profile is the invert of the pipe. If the trench is excavated to a depth greater than required, the CONTRACTOR shall refill such excess excavation according to the requirements of Section 02200 "Earthwork".

#### **3.2 INSTALLATION OF PIPE**

- A. Installation of pipe shall be in accordance with SSPWC 306-1.2. Pipe laying shall proceed upgrade with spigot ends pointing in direction of flow. After a section of pipe has been lowered into the prepared trench and immediately before joining the pipe, the ends of the pipe to be joined shall be cleaned, and the rubber gasket lubricated, all in accordance with the pipe manufacturer's written instructions. Assembly of the pipe length shall be in accordance with the recommendations of the manufacturer of the type of joint used. When cutting or machining of the pipe is necessary, only tools and methods recommended in writing by the pipe manufacturer shall be employed.
- B. The CONTRACTOR shall take all necessary precautions to prevent excavated or other foreign material from getting into the pipe during the laying operations. At all times when laying operations are not in progress and at the close of the day's work, the ends of the pipe in the trench shall be closed to prevent entry to animals and foreign materials.
- C. All necessary precautions shall be taken to prevent uplift or floating of the pipe prior to the completion of the back filling operation. The CONTRACTOR shall assume full responsibility for any damage due to this cause and shall restore and replace the pipe to its specified condition and grade at no increased cost to the OWNER.

#### **3.3 FIELD TESTING**

- A. The pipeline shall be tested in accordance with SSPWC 306-1.4 and Section 02730.

**\*\* END OF SECTION \*\***