

Division II
Section 2400
Storm Sewers



**DIVISION II
CONSTRUCTION AND MATERIAL SPECIFICATIONS**

SECTION 2400 STORM SEWERS

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SECTION 2400 STORM SEWERS

2400 SCOPE

Storm drainage structure construction shall consist of furnishing all labor, materials, and equipment necessary for the complete installation of storm sewers and related appurtenances in accordance with the Contract Documents and these specifications.

All materials shall be at the strength or class indicated. Higher strength materials may be furnished at the Contractor's option at no additional cost to the City.

The manufacturer and the Contractor shall use equipment and methods adequate to protect materials during moving, storage, or installation. Damaged materials that cause reasonable doubt as to their ability to perform as designed shall be rejected, and the Contractor shall remove the materials from the construction site as soon as possible.

Upon completion of the work, the Contractor shall leave the entire area within the limits of the contract in a clean and sightly condition.

2401 MATERIAL

Upon the request of the City Engineer, the Contractor shall provide three (3) copies of certified test reports indicating the material conforms to the specifications as outlined in the following sections. The manufacturer shall perform all tests in conformance with applicable standards. Testing may be witnessed by the City Engineer or approved independent testing laboratory.

All materials shall be stored so as to prevent deterioration or intrusion of foreign matter. No deteriorated or damaged material shall be used.

2401.1 Reinforced Concrete Pipe

Reinforced concrete pipe and specialty items, such as bends and transition Sections, shall be tongue and groove pipe, and shall conform to the requirements of ASTM C76 (round pipe) or C507 (elliptical pipe). Pipe shall be Class 11 or better, and shall be free from defects, breaks, cracks, and damage from improper handling. Any such defects shall constitute reasonable cause for rejection. All specialty items shall be of the same class or higher class than the adjacent pipe.

2401.2 Precast Manholes (Junction Boxes)

Precast manholes shall conform to ASTM C478, and the applicable City Standard Detail for storm sewer construction. Joints shall be sealed with a bitumastic material or non-shrink grout.

2401.3 Concrete

All concrete used on drainage structures shall be the standard mix as outlined in Section 2601.2 of STREETS AND PARKING LOTS.

2401.4 Concrete Block

Concrete blocks shall be solid, and shall be constructed of concrete with a minimum 28-day compressive strength of 4000 psi.

2401.5 Mortar and Non-Shrink Grout

Mortar and non-shrink grout shall be a combination of cement, sand and water which, when mixed, has a compressive strength equal to or greater than the materials it is bonding together.

2401.6 Manhole Ring and Covers

Rings and covers for inlets shall be best quality grey cast iron of standard design having clear openings equal to the dimensions shown on the drawings. Ring and cover shall be Clay and Bailey No. 2023 or approved equivalent when manhole is within street pavement; otherwise it shall be Clay and Bailey No. 2084-3 or approved equivalent. All manhole lids shall fit securely into the rings with no evidence of warp or other signs of improper fit.

2402 TRENCH EXCAVATION AND BACKFILLING

Trenches shall be excavated in the manner described in Section 2104.1 of “Grading and Sit Prep”. In addition, trenches shall be backfilled in the manner described in Section 2106 of “Grading and Site Prep”.

2403 INSTALLATION

All storm sewer pipe and structures shall be constructed in a competent manner using quality materials as previously outlined, and shall be constructed according to the lines and grades shown on the plans.

2403.11 Pipe

All pipes shall be laid using appropriate methods for the material used. Pipe shall be laid true to line and grade. Joints shall be water tight, and shall be sealed with bitumastic material. The bitumastic material shall be visible around the entire external perimeter of the joint after installation. All lifting eyes, or holes used for construction, shall be filled and sealed using manufacturer's supplied plugs or nonshrink grout.

2403.2 Inlets, Manholes and Junction Boxes

Inlets shall be cast in place concrete, or constructed of four (4) inch solid concrete blocks and mortar. Precast inlets will not be accepted. Manholes and junction boxes may be precast or cast in place, and shall be constructed according to Section 2210 of "Sanitary Sewers". Inlets, manholes, and junction boxes shall be constructed of the size, and at the location and elevation shown on the plans. All pipe connections shall be sealed by pouring a concrete collar around the pipe outside the structure, or by using non-shrink grout. The inverts shall be poured continuously through the structure where appropriate, and sloped to drain as shown on the Standard Details. Pipe connections shall be smooth and even with the inside wall of the structure.

2403.3 Connection to Existing Structures

Storm sewers shall be connected into existing structures as shown on the plans. The connection shall be made by cutting an appropriate size hole into the existing structure and inserting the pipe on the appropriate horizontal and vertical alignment. The pipe shall be even with the inside wall of the structure, and the opening around the pipe shall be closed neatly and tightly by pouring a concrete collar around the pipe outside the structure, or with non-shrink grout.

2403.4 Ditch Liners

Concrete ditch liners shall be constructed to the lines, grades, and cross-sectional shape as shown on the plans. All excavation, backfilling, and compaction required shall conform to the appropriate sections of EARTHWORK AND TRENCHING.

2404 TIES AND RECORDS

It shall be the contractor's responsibility to provide accurate ties and records to bends, tees, transition- sections, manholes, and other storm sewer appurtenances. The Contractor shall provide at least three (3) measurements for each, two of which shall be from established property pins.