



## v. Design and Performance Provisions

### **(a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems;**

New and rehabilitated sewers and pump stations are planned, designed and constructed to meet the highest performance standards in the industry in accordance with the City's Sewer Design Manual. The Manual is a comprehensive set of criteria for planning and design of new sewers, pump stations, force mains, and appurtenances, and for the rehabilitation of existing sewers. It includes sections on:

- Flow projections and sewer hydraulics
- Sewer alignments
- Sewer materials and structures
- Planning and design for sewer rehabilitation and replacement
- Sewer construction
- Pump stations and force mains
- Sewer system operation and maintenance

Standard Plans are used to provide consistency and quality in design. The City encourages users of the Sewer Design Manual and Standard Plans to critique and provide feedback on the standards. Thus, the Sewer Design Manual and the Standard Plans are continuously being updated to incorporate improved materials, methods, and processes. The Bureau of Contract Administration provides recommendations to the Bureau of Engineering for modifying the standard details and master specifications for construction projects. The Bureau of Sanitation's Wastewater Collection Systems Division provides input for improved performance of system components based on experience gained in operation and maintenance. Proposed changes to the criteria and the Standard Plans are evaluated thoroughly before they are adopted.

Complicated connection, diversion, and transition structures are modeled in the City's hydraulic research laboratory to ensure that each structure will perform equal to or better than designed. Modelers work closely with designers to optimize performance.

As new products are introduced, they undergo a thorough review and evaluation by the "Green book" Committee, a group of public works officials in the Southern California area that is dedicated to high performance construction materials and standards. The "Green Book" Committee is a clearinghouse for the review of new products and construction methods. It develops standard specifications that become part of the "Green Book." The City supports this committee and references applicable "Green Book" specifications as appropriate for the construction of new and rehabilitation sewer projects. Emergency repairs are conducted according to the "Green Book" standards. Specifications for larger

diameter sewers are tailored to meet the unique project needs. The Bureau of Contract Administration provides constructability reviews of sewer, pump station, and force main designs. All City designs are independently reviewed before they are signed by the City Engineer.

All system components are designed to meet permit requirements of the various federal, state and local agencies. In addition, environmental documents are prepared to comply with the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both as appropriate. This process ensures that projects benefit from the input of all affected and interested parties including the communities.

The Bureau of Engineering, Wastewater Conveyance Engineering Division is responsible for updating and maintaining the City's design requirements and standards. Users of the design guide are responsible for submitting suggested modifications to the standards. Bureau of Contract Administration is responsible for enforcing compliance with the plans and specifications for installing new sewers, pumps and other appurtenances and rehabilitation and repair projects.

**(b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.**

The Bureau of Contract Administration provides inspection on all rehabilitation and new sewer system construction contracts. Written inspection procedures are followed to ensure that sewer system facilities are built to conform to the plans and specifications. Inspections are conducted both on the jobsite and at material fabricators during manufacture and testing. The Bureau of Contract Administration coordinates its work with the design engineers to ensure the intent of the design is met. The City does not accept the installed components until they pass all required performance tests and a field acceptance from the BCA final inspector is issued. New or rehabilitated system components are placed into service upon certification by the Bureau of Contract Administration's inspectors that they have been installed in accordance with plans and specifications.

***References***

Building News, "Public Works Inspectors' Manual, Latest Edition

City of Los Angeles Master Specifications

City of Los Angeles, Bureau of Engineering, Sewer Design Manual

City of Los Angeles, Department of Public Works, Bureau of Engineering, Standard Plans

Building News, "Standard Specifications for Public Works Construction," (referred to as the "Green Book"), Anaheim, California, Latest Edition

Building News, "Public Works Inspectors' Manual," Anaheim, California, Latest Edition

City of Los Angeles, City Uniform Plumbing Code, Latest Edition