

**Water and Sewer Utility Design Standards  
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(4.4.12.1) The construction drawings shall be prepared with adequate information to describe the proposed water and sewer mains. The information provided shall include but not be limited to the following:

(4.4.12.1.1) Water Mains

- A. Plans shall address all issues listed in the Site Plan Requirements located in Appendix B of this manual
- B. Plans shall address all applicable issues listed in the Supplemental Site Plan Check List for Water and Sewer Main Extensions located in Appendix C of this manual
- C. Alignment and stationing
- D. Pipe size
- E. Pipe material
- F. Horizontal location/separations
- G. Water main appurtenances
- H. Special views; enlarged plan views or detailed dimensional layouts

(4.4.12.1.2) Sanitary Sewer Mains

- A. Plans shall address all issues listed in the Site Plan Requirements located in Appendix B of this manual
- B. Plans shall address all applicable issues listed in the Supplemental Site Plan Check List for Water and Sewer Main Extensions located in Appendix C of this manual
- C. Alignment and stationing
- D. Pipe size
- E. Pipe material
- F. Manhole labels, top elevations, invert elevations (in, out, and drop connections), city block map designations for existing manholes

G. Horizontal location/separations

H. Special views; enlarged plan views or detailed dimensional layouts

(4.4.13) Corrosion Control

(4.4.13.1) All buried water systems and ferrous sewer pipes shall be field wrapped in polyethylene encasement. The encasement shall include all buried pipe, valves, fittings, hydrant bases and copper water service lines within 3 feet of the main. Encasement shall be installed, protected and repaired per Ductile Iron Pipe Research Association (DIPRA) Polyethylene Encasement Installation Guide and manufacturer's installation instructions. Polyethylene encasement materials shall be per the City's Product Manual. Construction drawings shall clearly specify corrosion control design.

(4.4.13.2) Polyethylene encasement may be waived where the soils are determined to be non-aggressive. Non-aggressive soils are defined as those having a resistivity of greater than 1,800 ohm-cm as measured by a water-saturated soil box. The soil along the entire length of the pipeline must be tested at intervals not to exceed 100 feet. A minimum of 2 samples must be collected for every pipeline.

(4.4.13.2.1) Pipelines installed in coal cinders or organic soils shall be polyethylene encased regardless of resistivity. Organic soils are defined as being dark gray or black with a sulfur or earthy smell. Determination shall be made by the City Utility Inspector.

(4.4.13.2.2) Imported fill material will assume the characteristics of the surrounding native material. Resistivity and cinder and organic soil determinations are to be based on existing soils in the location of the proposed pipeline, and at the depth of the proposed pipeline.

(4.4.13.2.3) Where two consecutive soil samples indicate non-aggressive soils, polyethylene encasement may be waived between the two samples. Construction drawings shall clearly denote the limits of polyethylene encasement.

**4.5 Design Criteria and Profile Requirements for Construction Drawings: Water And Sewer Main Extensions**

(4.5.1) Cover Depth - All water mains shall have a minimum cover of three feet and a maximum cover of eight feet, measured from the top of pipe to the proposed finished grade directly above the water main.

(4.5.2) Conflicts With Utilities Shall Be Shown In Profile And: