

300 DESIGN DRAWINGS

301 SCOPE. This section sets forth the requirements for the collection and depiction of existing underground utility data on design drawings to be used for construction projects within the right-of-way.

302 DESCRIPTION: During the design phase, the designer shall gather available information on underground utilities in the proposed construction area. The utility information shall be incorporated into scaled topographic base maps of the construction route or area. The consolidated drawings shall be used to determine the final route selection and design.

303 APPLICABLE STANDARD: The design drawings shall incorporate underground utility information based on subsurface utility engineering practices and Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data (CI/ASCE 38-02). A copy of CI/ASCE 38-02 is included at the end of this section.

The ASCE standard, based on subsurface utility engineering (SUE), presents a system of classifying the quality of subsurface utility data.

304 COLLECTION OF DATA: Underground utility information shall be collected using the Subsurface Utility Engineering (SUE) process.

.01 Subsurface Utility Engineering (SUE): SUE is an engineering process used to identify and map underground utilities and structures as well as assign a quality level to data. The main components of SUE are:

A. Designation: Designation is the use of geophysical investigating methods such as electromagnetic pipe detectors to determine the horizontal position of subsurface utilities.

B. Locating: Locating or potholing utilizes non-destructive digging equipment to expose the underground utility at critical points along its path to determine the horizontal and vertical position of the utility.

C. Data Management: Data Management is the collection, documentation, reduction, and depiction of information and data in a suitable format.

305 QUALITY LEVELS: A brief description of the four quality levels of SUE data is provided below. Refer to CI/ASCE 38-02 for detailed information on the tasks involved in each quality level.

.01 Quality Level A: Quality Level A provides the highest level of accuracy. Quality Level A involves potholing utilities as well as activities in quality levels B, C, and D. The located utility is surveyed and mapped and the data provides precise plan and profile information.

.02 Quality Level B: Quality Level B involves designating the horizontal position of subsurface utilities through surface detection methods and collecting the information through a survey method. Quality Level B includes Quality Level C and D tasks.

.03 Quality Level C: Quality Level C involves surveying visible subsurface utility structures such as manholes, hand-holes, utility valves and meters, fire hydrants, pedestals and utility markers, and then correlating the information with existing utility records to create composite drawings. Quality Level C includes Quality Level D tasks.

.04 Quality Level D: Quality Level D provides the most basic level of information. Quality Level D involves collecting data from existing utility records. Records may include as-built drawings, distribution and service maps, existing geographic information system databases, and construction plans.

306 DESIGN: Utility data collected during the SUE process shall be combined with the topographic base map to create a composite drawing. The composite drawing shall be used to determine the best design based on avoiding and minimizing conflicts with existing facilities. Proposed facilities shall be routed and designed to maintain 2 feet (min.) horizontal and vertical clearance from all existing utilities, structures, and property lines, unless other standards require stricter minimum clearances.

307 SELECTING THE SUE QUALITY LEVEL: All drawings submitted to the City shall depict existing utilities based on Quality Level D. The City shall reserve the right to request a higher level based on project location and other factors. The utility company may request that the City approve a change in the required SUE quality level.

308 DRAWING REQUIREMENTS: The design drawings shall include existing topographic and utility information and proposed facilities. The drawings shall be drawn to scale, with dimensions indicating the horizontal position of existing and proposed facilities. Distinct line types, symbols, and notes shall be used to indicate different types of facilities, SUE quality levels, and existing and proposed facilities. All proposed construction must be shown in bold face. The drawings shall include a legend and the information described in the following sections.

- .01 Identify SUE Quality Level:** CI/ASCE 38-02 describes and explains methods of depicting SUE information on the drawings. The basic requisite is to indicate on the drawings the quality level of each set of utility data through various line types or notes. Refer to CI/ASCE 38-02 for additional information.
- .02 Identify Information Source:** Each set of facility data shall include a note explaining the source of the information in addition to the quality level.
- .03 Plans and Profiles:** Scaled plan drawings depicting existing and proposed utilities and structures with horizontal positions shall be provided for all projects.
- A. Plan:** The plan view shall have dimensions indicating the clearance between existing and proposed facilities, structures, and property lines. Vertical positions of underground utilities shall be indicated in the same manner. At a minimum, vertical position information shall be included in note format for each existing utility that will be crossed by proposed construction.
- B. Profile:** Profiles are required for all SUE quality level A projects. Profiles shall be depicted in the same horizontal scale as the plan view and shall be aligned directly below the plan view. Profiles shall depict the vertical position of both existing and proposed facilities with dimensions indicating clearances.

End of Section