Orange County Fire Authority

Community Risk Reduction

1 Fire Authority Road, Building A, Irvine, CA. 92602 www.ocfa.org 714-573-6100

Underground Piping for Private Hydrants & Sprinkler Supply Line

Guideline B-03

Serving the Cities of Aliso Viejo • Buena Park • Cypress • Dana Point • Garden Grove • Irvine • Laguna Hills • Laguna Niguel • Laguna Woods
Lake Forest • La Palma • Los Alamitos • Mission Viejo • Rancho Santa Margarita • San Clemente • San Juan Capistrano • Seal Beach
Santa Ana • Stanton • Tustin • Villa Park • Westminster • Yorba Linda and Unincorporated Areas of Orange County

Underground Piping for Private Hydrants & Sprinkler Supply Line

1. PURPOSE

The provision of adequate water supplies and distribution systems for fire suppression is a fundamental component of risk reduction. The purpose of this guideline is to provide the basic information necessary to meet minimum requirements for the design and installation of private fire hydrant and/or fire sprinkler system supply underground piping in accordance with the provisions of the 2025 California Fire Code (CFC), the 2025 California Building Code (CBC), and the 2025 editions of NFPA 24, NFPA 13, NFPA 13R, and locally adopted amendments to these codes.

2. SCOPE

This guideline is applicable to all private underground piping for fire hydrants and/or fire sprinkler system supply lines within the jurisdiction of the Orange County Fire Authority (OCFA). This guideline is not applicable to underground piping serving public fire hydrants or fire sprinkler systems designed in accordance with 2025 NFPA 13D and systems designed in accordance with 2025 NFPA 13R when the underground piping is not required to comply with 2025 NFPA 24.

3. SUBMITTAL REQUIREMENTS

3.1 General

Plans for all private underground piping for private fire hydrants and/or fire sprinkler system supply line(s) shall be submitted to OCFA for review and approval prior to installation.

Plans shall be submitted per OCFA Guideline A-02, Submittal Process & Requirements.

3.2 Information to be provided on the coversheet

The OCFA standard coversheet shall be provided, which includes OCFA's standard underground notes. A fillable coversheet is available for download at www.ocfa.org by searching "coversheet underground". Complete all applicable fields, including:

- Applicable codes and standards used for the system design (e.g., 2025 CFC, 2025 CBC, 2025 NFPA 24, etc.).
- Project location, including the full legal address of the facility, and building number(s) if applicable; tract or parcel number.
- The contractor's name, telephone number, address, and California State contractor's license number and classification. Contractors must possess a valid General-A, C16, or C34 license or be registered as a Professional Engineer (PE). *Note: If the piping plan is designed by a PE, the plan shall contain the name, license number, and classification of the installing contractor, along with the PE stamp. If this information is not available at the time the plans are submitted, proof of compliance with this requirement must be provided to the OCFA at the first inspection.*

3.3 Additional Required Information

A. Location of public mains and all public hydrants within 300 feet of the site.

B. Location of all valves. Specify the type for each (e.g., post indicator valve (PIV), key gate valve, double detector check (DDC) assembly, outside stem and yoke (OS&Y), etc.).

C. PIVs, or other approved indicating valves, serving buildings 40 feet or more in height shall be located a minimum of 40 feet from the building. For buildings less than 40 feet tall, the valve shall be located no closer than the height of the building. Where it is *impractical* to locate control valve(s) at these minimum distances, they may be located closer using one of the following methods:

- Approved wall mount indicating valves: Located on exterior walls.
- Fire sprinkler riser room or exit stair enclosure: The valve must be placed in a room separated from the building by a minimum one-hour fire rated barrier, and the room must be directly accessible from the exterior.
- Exterior risers: The valve may be placed in locations adjacent to exterior walls.
- An approved manner acceptable to OCFA.

D. Pipe size, class, and type of material.

E. Indicate that ferrous pipe and fittings (excluding stainless steel 316) shall be encased in loose-fitting polyethylene wrapping or tubing. Exposed edges, cuts, and tears shall be taped to separate the soil from the ferrous pipe. A minimum one-foot overlap shall be provided when multiple sections of wrapping or tubing are required to cover the ferrous pipe section. Tubing shall extend 3 feet beyond transitions between areas where ferrous pipe or fittings are used and where non-ferrous pipe begins.

F. All bolts used for underground connections, including T-bolts, shall be 316 stainless steel. Asphaltic sealants (and other opaque sealants) shall not be used to coat bolts (this is to ensure bolts can still be verified as 316 stainless steel during inspection).

G. Thrust block locations, or specify the means of restraint as approved by 2025 NFPA 24.

H. Location of the fire department connection (FDC). FDCs shall be on the address side of the building and located immediately adjacent to the approved fire department access road. The FDC shall be in a position allowing hose lines to be readily and conveniently attached. The FDC shall contain a minimum of *two* 2½-inch inlets. When the fire sprinkler system demand is 500 gpm or greater (including the interior hose stream demand) or a standpipe system is included, at least *four* 2½ inch inlets shall be provided, with one additional inlet for each additional 250 gpm of demand. The FDC shall be a listed assembly.

I. FDCs shall be no more than 150 feet from a public hydrant, as measured along a drivable fire access roadway. The FDC may be located within 150 feet of a private hydrant if the FDC is connected to the fire sprinkler system side (i.e., downstream) of a check valve, if approved.

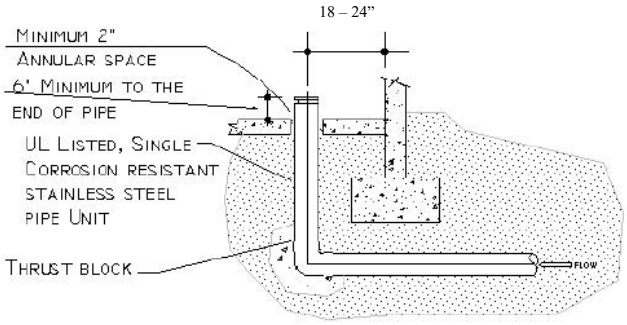
J. FDCs, PIVs, and backflow assemblies shall be readily visible and accessible from the fire lane.

K. FDCs and all indicating valves shall be painted OSHA Safety Red.

L. FDCs, PIVs, and double check detector assemblies (DCDAs), shall have durable, legible signs clearly indicating the address of the facility they serve. Signs must be metal or plastic, secured with a chain or wire, and the letters must be highly contrasting to their background. Signs shall be securely attached.

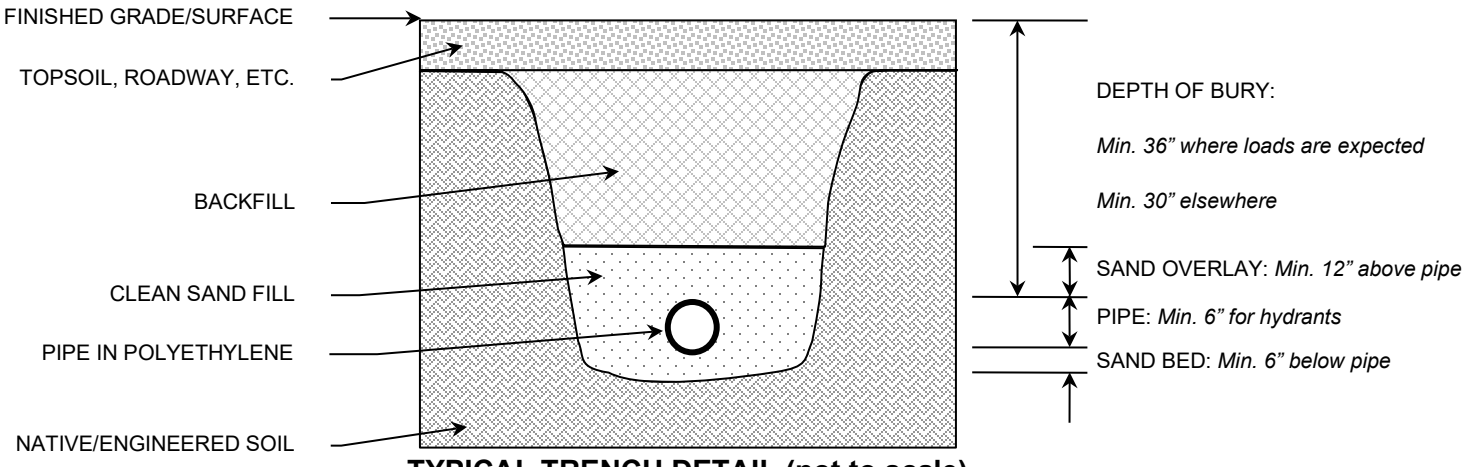
M. Private underground systems serving more than 5 appurtenances shall be provided with indicating sectional control valves located so that no more than 5 appurtenances would be affected by a shutdown of any single portion of the fire service main. *Note: Each fire hydrant, fire sprinkler system riser, and standpipe riser is considered a separate appurtenance.*

N. Provide a fire sprinkler system riser detail. When a pipe runs under footings or foundations of the building, a single corrosion resistant stainless steel pipe unit assembly is required. The pipe shall be located 18 to 24-inches from the interior side of an exterior wall and shall terminate a minimum of 6 inches above the finished floor. A minimum of 2 inches clearance (annular space) shall be provided where the pipe passes through the floor or wall.



UNDER FOUNDATION RISER DETAIL (N.T.S.)

O. Provide a typical trench section detail showing the depth of bury and the depth of the sand bedding above and below the pipe. The depth of bury shall be a least 36-inches where vehicle loads are expected and 30-inches elsewhere, as measured from the top of the pipe to the finished grade. A bed of clean sand fill below the pipe shall be at least 6-inches deep with at least 12-inches of clean sand fill above the pipe between the pipe and the backfill soil.



TYPICAL TRENCH DETAIL (not to scale)