## Dixon Fire Department

Prevention Division

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TODD MCNEAL
Fire Chief

| DIXON FIRE DEPARTMENT |  |  |  |
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| FIRE PREVENTION STANDARD |  |  |  |
| STANDARD <br> TITLE: <br> STANDARD <br> NUMBER: | 1 | Installation and Maintenance of Private Fire Hydrants |  |

## SCOPE

This standard is for the design, installation, and maintenance of private fire hydrants and is pursuant to the 2022 California Fire Code, Local Ordinance and the 2019 edition of NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances.

This Standard will apply to all fire hydrants installed on private property within the jurisdiction of the Dixon Fire Department. This standard does not apply to public fire hydrants installed within a utility easement on private property.

An Annual Operational Permit is required for each private hydrant. CFC 105.5.41

## SPECIFICATIONS

## 1. Private On Site Hydrants

a. Fire hydrants shall be a Clow 960. (NFPA 24, § 7.1.1)
b. Fire hydrants shall be mounted on an approved break off check valve. (NFPA 24 § 7.3.4)
c. All fire hydrants shall be supplied by a minimum of six inch piping. The piping size shall be sized for fire flow requirements in Appendix B of the CFC. (NFPA 24 § 7.1.1.1)
d. The 412 -inch "steamer" outlet shall face the street or fire apparatus access roadway. This outlet shall be a minimum of 18 inches and not more than 36 inches above grade measured from the center of the operating stem. (NFPA 24 § 7.1.1.3, 7.3.3, and 7.3.3.1)
e. Private Fire hydrants are to be painted red.(NFPA 24 § 7.1.1. \& D.5.1.9)

# FIRE PREVENTION STANDARD 

STANDARD TITLE:

Installation and Maintenance of Private Fire Hydrants
STANDARD
NUMBER:
1 EFFECTIVE DATE: 4/01/2023 REVISION DATE: 4/1/2023
f. The fire hydrant base flange shall be a minimum, of 2 inches above the finished grade or planter curb. (NFPA 24 § 7.1.1)
g. Hydrants shall be within 8 feet of the approved fire department access. (NFPA 24 § 7.2.1)
h. Buildings equipped with a standpipe or fire sprinkler system shall have a fire hydrant located within 40 feet of the fire department connection. (CFC § 507.5.1.1 \& NFPA 24 § 5.9.5.1 as amended)
i. Fire hydrants shall not be located closer than 40 feet from the building to be protected. (NFPA 24 § 7.2.3)
j. Fire hydrants shall not be installed in the bulb of a cul-de-sac. (NFPA 24 § 7.1.1)
k. There shall be no obstructions, including plants, within a 36 -inch radius of any fire hydrant. (CFC § 507.5.5)
I. There shall be a seven-foot vertical clearance above the 36 -inch clear radius around the fire hydrant. (CFC § 507.5.5)
m . Vehicle protection shall be provided for fire hydrants subject to vehicular damage by approved barricades or a minimum of a six-inch curb. (CFC § 507.5.6)
n . Blue reflective hydrant markers shall be installed in accordance with the following (CFC § 509.1):
I. On unstriped roadways, blue markers shall be set in the center of the roadway.
II. On undivided striped roadways, blue markers shall be set 6 inches to the hydrant side of the center stripe.
III. On divided roadways, the blue marker shall be set 6 inches to the side of the median or lane striping, which is closest to the hydrant.
IV. In locations where hydrants are situated on corners, blue markers shall be installed on both approaches fronting the hydrant.

# FIRE PREVENTION STANDARD 

STANDARD TITLE:
STANDARD
NUMBER:

## Installation and Maintenance of Private Fire Hydrants

1 EFFECTIVE DATE: 4/01/2023 REVISION DATE: 4/1/2023

## 2. Backflow Prevention

a. Private fire hydrant supply piping may be provided with back-flow prevention devices as approved by the local water purveyor and the Fire Department.
(NFPA 24 § 6.2.9)
b. Flow and pressure loss through the back-flow prevention devices shall be taken into consideration when calculating pressure flow and loss for an on-site hydrant system. (NFPA 24 § 6.5.1)
c. An independent supply loop is required that is separate from a fire sprinkler system.
3. Looped Systems (CFC § 507.1)
a. Three or more hydrants will require two points of connection to the public or private water supply piping.
b. Two or more hydrants in conjunction with fire sprinkler supply piping will require two points of connection to the public or private water supply piping.
c. Seven or more fire sprinkler systems will require two points of connection to the public or private water supply piping.
d. When two or more points of connection to the main water supply are required, they shall be installed as remotely as possible.

## 4. Shared Utility Agreement (CFC § 507.1)

a. A Shared Utility and Maintenance Agreement shall be recorded at the public recorder's office having jurisdiction and provided to the Fire Department for all private fire hydrant systems serving multiple parcels or properties.

## 5. Installation and Inspections (NFPA 24 § 4.1.1)

a. Underground piping shall be installed in accordance with NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances and the approved plans prepared by a civil engineer or piping installation contractor. The underground fire service installation contractor shall submit for review and approval, a schematic drawing showing the part for part installation arrangement of the underground piping and appurtenances and a parts list with listing information for all parts prior to installation. A trench cross sectional detail shall

# FIRE PREVENTION STANDARD 

STANDARD TITLE:
STANDARD
STANDARD 1
NUMBER:
Installation and Maintenance of Private Fire Hydrants
1 effective date: 4/01/2023 Revision date: 4/1/2023
be included on the plans. A copy of the APPROVED underground fire service plans shall be on site for all Dixon Fire Department inspections and acceptance testing.
b. Plastic piping approved for underground installations shall be PVC, C900, Class 150 or greater, and be listed for such use.
c. All runs of non-metallic water pipe shall have a No. 10 gauge solid soft drawn copper locator wire taped on top of the pipe to facilitate locating the pipe at a later date. The wire shall be stubbed up inside each valve box. Continuity test shall be conducted on each splice at all locations.
d. Galvanized pipe is not approved for underground supply piping.
e. Non-metallic pipe shall not be used within five feet of a building.
f. Above grade valves for controlling the water supply for on-site fire hydrant systems shall be electrically supervised.
g. All piping shall be laid in a six inch bed of sand or natural gravel not over one inch in diameter and have a twelve inch fill of sand or natural gravel not over one inch in diameter. See detail, page 7.
h. A strand of minimum 3" wide non-detectable blue tape marked "CAUTION: WATER LINE BURRIED BELOW" shall be placed 12 inches above all piping.
i. All sections of ductile iron pipe or ductile iron fittings shall be encased in either 8mil linear low density (LLD) or 4-mil high-density, cross-laminated (HDCL) polyethylene sheets or tubes in accordance with American Water Works Association Standard C105/A21.5-05, Polyethylene Encasement for Ductile-Iron Pipe Systems. Any fasteners shall be made of low-alloy steel.
j. Concrete thrust blocks or other approved retaining, shall be installed at all locations where piping changes direction.
k. A $200-\mathrm{PSI}$ hydrostatic pressure test shall be performed on all installed piping and appurtenances for a period of two hours. The piping shall be center-loaded during pressure testing with all joints, fittings and appurtenances uncovered. Failure to comply with this section will result in a test failure and the uncovering of the piping for a visual inspection and retesting.
I. A fire hydrant flush, using an open pipe outlet not a fire hydrant, shall be conducted at all hydrants and witnessed by the Fire Department. Piping shall be flushed until all foreign objects have been discharged and the water is clear.
m . Fire Department personnel may conduct flow testing to verify the ability of the system to provide the required fire flow.

# FIRE PREVENTION STANDARD 

STANDARD TITLE:

Installation and Maintenance of Private Fire Hydrants
STANDARD
NUMBER:
1
EFFECTIVE DATE: 4/01/2023 REVISION DATE: 4/1/2023

## 6. Maintenance and Testing (CFC § 507.5.2)

a. Annual Maintenance
I. Ensure hydrant is visible and accessible.
II. Remove caps and inspect threads, gaskets and cap chains.
III. Clean and lubricate threads.
IV. Check condition of pentagon operating nut.
V. Locate and exercise the underground control valve (key valve, road box or foot valve).
VI. Operate each valve on the hydrant and flow water for approximately one minute.
VII. Clean and paint hydrant following NFPA 291 standards as necessary.
VIII. Ensure the blue reflective marker is installed and visible.
IX. Any deficiencies noted shall be corrected immediately.
b. Five Year Maintenance
I. Perform annual maintenance as outlined above.
II. Perform flow testing in accordance with NFPA 291, Recommended Practices for Fire Flow Testing and Marking of Hydrants.
III. Any deficiencies noted shall be corrected immediately.

## c. Licensing Requirements

I. Fire hydrant maintenance and testing shall be performed by one of the following:
A. C-16 - Fire Protection Contactor
B. C-36 - Plumbing Contractor
C. C-34 - Pipeline Contactor
D. California State Fire Marshal - License A, Type 1
d. Record Keeping
I. All maintenance and testing of private fire hydrants shall be recorded and maintained by the property owner. Copies shall be made available to the Fire District upon request.

# FIRE PREVENTION STANDARD 

STANDARD TITLE:
STANDARD
NUMBER:
Installation and Maintenance of Private Fire Hydrants
1 effective date: 4/01/2023 Revision date: 4/1/2023


