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Supersedes: New		
Effective: 5-19-22		
Prepared by: D.J. Satterfield		
Approved by: Jeff Schovanec		

GENERAL

Bypass piping is a temporary above ground piping system that provides uninterrupted water service during construction work. The purpose is to supply water to facilities normally served by the water main(s) out of service due to construction work or a water emergency.

Bypass piping is prone to freezing during cold weather and is typically considered for use between April 1 and October 31. (Emergency use may extend this timeframe)

PIPE SIZES AND MATERIALS

Bypass piping shall be no smaller than the largest service line being serviced.

Fire Protection Required

- If fire protection is required, bypass piping shall be a minimum of nominal 4" diameter.
- Temporary fire hydrants shall have a standard 4 ½" male fire hydrant connection and a hydrant branch valve that is easily operated in the event of a fire and must be supported (braced) in all directions.
- Temporary fire hydrants shall be no more than 500' apart or 500' from another in-service hydrant.

Fire Protection Not Required (residential areas)

- If fire protection is not required, nominal 2" bypass piping is acceptable.

All fittings and materials shall be NSF61 approved lead-free. Restrained Joint PVC (Certa-Lok) or HDPE are acceptable materials.

BYPASS FEEDS

Bypass piping systems are typically fed by fire hydrant above ground connections. Any hydrant used must be a certified "Lead-Free" hydrant.

Note: Contact Engineering Design if unsure of lead content.

Hydrant Connections

- Use a standard 2 ½" backflow setup for a 2" bypass.
- For 4" connections, a backflow assembly should be connected to the 4 ½" nozzle.
- The hydrant must be fully opened to ensure that weep holes can't become partially exposed. A Pollardwater Kinglock K3 or engineer-approved alternative shall be used to lock the hydrant open.
- Notify the Fire Department of the Authority Having Jurisdiction (AHJ) regarding areas that are to be placed on temporary bypass piping.
- If service connections will be made to a customer hose bib and pressures in the area exceed 80psi, then a Pressure Reducing Valve (PRV) shall be used downstream of the hydrant connection.

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Connections at Main

- A tapping sleeve and valve, a new cut-in tee, or a chlorine tube may be used.
- At least a 4” backflow device shall be installed outside of the excavation with a valve on each side.
- If service connections will be made to a customer hose bib and pressures in the area exceed 80psi, then a Pressure Reducing Valve (PRV) shall be used downstream of the main connection.

CUSTOMER CONSIDERATIONS

Single Feed System

- No more than 50 customers should be served by a single feed bypass system.

Dual Feed System

- The system shall have valves so that no more than 50 customers are on a single shutoff.

SERVICE CONNECTIONS

- A corporation stop valve shall be used.
- Service lines can either be flexible rubber hose or HDPE.
- All service lines and fittings shall be NSF61 approved lead-free and flushed prior to serving customers.
- If connecting to a hose bib, the customer’s meter shall be removed by Field Service personnel prior to connection. A vacuum breaker/backflow device should be installed on the hose bib so that water from the house is not permitted to flow back into the potable water system.
- Consult Management and Customer Experience before connecting services and removing meters.
- If connecting to a flare fitting near the existing water main, all lead service lines shall be replaced prior to connection.

STREET CROSSINGS

- Where bypass piping crosses paved major roadways, or large commercial driveways, saw cut surface to full depth and to a minimum width of 2’. Bury bypass piping and cover with cold-mix asphalt. When operations have been completed, replace cut surface back to its original state or as otherwise directed by the AHJ for paving repairs.
- Where bypass piping and service connection hoses cross residential streets, sidewalks, residential driveways and alleys, use a preformed rubber ramp.
- Where bypass piping crosses dirt or gravel (unpaved) streets or driveways, shallow trenching and gravel pack as backfill may be used.

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DISINFECTION AND WATER QUALITY

Disinfection shall be achieved by using an acceptable method per AWWA/ANSI C651-14.

Disinfection can be achieved by using granular calcium hypochlorite upon installation.

After disinfection and flushing, the piping must pass bacteriological testing per State regulations before any service connections are made.

Disinfection must occur whenever piping is disassembled and reassembled.

Small diameter (1" and smaller) service piping must not be reused.

If outside temperatures exceed 80° F, during the time bypass piping is in continuous service, a flush point must be installed and continuously drained to a nearby storm sewer to ensure water temperatures don't become unreasonably elevated.

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