

**APPROVED FOR CONSTRUCTION**

THE DOCUMENT BEARING THIS STAMP HAS BEEN RECEIVED AND REVIEWED BY THE  
TENNESSEE DEPT. OF ENVIRONMENT & CONSERVATION

DIVISION OF WATER RESOURCES

AND IS HEREBY APPROVED FOR CONSTRUCTION BY THE COMMISSIONER



05/27/2022

THIS APPROVAL SHALL NOT BE CONSTRUED AS CREATING A  
PRESUMPTION OF CORRECT OPERATION OR AS WARRANTING BY THE  
COMMISSIONER THAT THE APPROVED FACILITIES WILL REACH THE  
DESIGNED GOALS.

APPROVAL EXPIRES ONE YEAR FROM ABOVE DATE

**City of Alcoa Water Specifications**  
**Addendum No. 1 – May 2022**  
**TDEC No. DW 2021-0674**



### 1.0.2 Pre-Design Conference

*Add:*

- (c) The engineer must be licensed to practice in the State of Tennessee by the Tennessee Department of Commerce and Insurance, Board of Architectural and Engineering Examiners.
- (d) In residential, commercial, and industrial developments, fittings and piping for new water lines shall be furnished and installed by the developer. (See City of Alcoa Municipal Code, Title 18, Section 18-503 "Extension of Mains".)

### 1.0.5 (d) 2. Fire Protection

*Delete the following line:*

- 2. A check valve or backflow prevention device shall be installed.

### 1.0.5 Fire Protection:

*Add:*

- (g) A backflow prevention device shall be installed on all fire systems as according to its class designated by the 2008 Cross-Connection Control Manual and Design Criteria for Cross-Connection Control Plans, Ordinances, and Policies, put out by the Tennessee Department of Environment and Conservation Division of Water Supply. Class 1-3 shall be, at minimum, a double check backflow assembly. Class 3-6 shall be, at minimum, a reduced pressure principle backflow assembly.
- (h) Fire system backflow classifications are as follows:
  - 1. Class 1: Direct connection to the City's water supply, except for the following:
    - a. No pumps, tanks, or reservoirs
    - b. No physical connection from other water supplies
    - c. No antifreeze or other additives of any kind
    - d. All sprinkler drains shall discharge to the atmosphere, dry well, or other safe outlets.
  - 2. Class 2: Same as Class 1, except booster pumps may be installed in connection with the City's water supply.
  - 3. Class 3: Direct connection to the City's water supply, adding any one or more of the following:

- a. Elevated storage tanks
  - b. Fire pumps taking suction from above ground covered reservoirs or tanks
  - c. Pressure tanks
4. Class 4: Directly supplied from the City's water supply, similar to Class 1 and Class 2, with and auxiliary water supply dedicated to Fire Department use and available to the premises, such as an auxiliary supply located within 1,700 feet of the pumper connection.
  5. Class 5: Directly supplied from the City's water supply and having interconnection with auxiliary supplies, such as pumps taking suction from reservoirs exposed to contamination, rivers, ponds, wells, or industrial water systems (where antifreeze or other additives are used).
  6. Class 6: Combines industrial and fire protection systems supplied from the City's water supply only, with or without gravity storage or pump suction tanks.
- (i) All fire system backflow devices shall be installed:
1. In an area free from submergence or flood potential, and cannot in any circumstances be installed in a pit or hole.
  2. In an area that has adequate lighting and space to allow for access, inspection, and/or repairs, and free from any known hazards.
  3. At a minimum height of fourteen inches (14"), plus nominal diameter of the supply line, above the finished grade level/surface. The maximum height above the finished grade level shall not exceed seventy-two inches (72").
  4. No closer than six inches (6") to a wall or other obstructions. All test fittings and valves should not be facing wall or other obstructions. If test fittings and/or valves must face the wall or other obstructions due to orientation of the device, then the device shall be at a minimum of twenty-four inches (24") clearance from the wall or other obstructions to the closest point of the finished assembly device to be allowed.
  5. With all test cocks, fittings, and valves as required for testing of the assembly. No modifications to the test cocks, fittings, and/or valves will be allowed.

**1.1.5 (b) 2. Separation of Water Mains, Sewers, and Other Utilities**

*Original:*

2. Where water mains must cross under sewers, a minimum vertical separation of at least 18 inches shall be provided between the bottom of the sewer and the top of the water main. Both the water main and the sewer line shall be constructed of water line pipe with a length of water line pipe centered at the point of crossing. Adequate structural support shall be provided to prevent excessive deflection of joints and settling on and breaking the water mains.

*Revise. The version mistakenly had the sewer line above water line:*

2. Where water mains must cross under sewers, a minimum vertical separation of at least 18 inches shall be provided between the bottom of the water main and the top of the sewer. Both the water main and the sewer line shall be constructed of water line pipe with a length of water line pipe centered at the point of crossing. Adequate structural support shall be provided to prevent excessive deflection of joints and settling on and breaking the water mains.

### 1.1.7 Cross Connections

*Delete the following line as shown:*

- (a) There shall be no physical connection between the distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into the system, unless such connections are protected using a reduced pressure backflow prevention device., ~~air gap, or other approved backflow prevention measure.~~

*Add:*

- (e) All irrigation, Class 3-6 fire systems, and commercial and industrial services shall have, at minimum, a reduced pressure principle backflow assembly. Backflow devices for Class 1-3 fire systems shall have, at minimum, a double check valve assembly. Fire system classifications and installation requirements are provided under Sections 1.0.5 (g), (h), and (i) of these Specifications.
- (f) Backflow Testing and Repair Redundancy: Where the use of water is critical for the continuance of normal operations, and also for the protection of life, property, and/or equipment during normal City of Alcoa business hours, a duplicate backflow prevention assembly shall be installed in parallel to the primary backflow assembly to avoid the necessity of completely turning off the water service for testing and/or repair of the primary backflow prevention assembly. The duplicate backflow prevention assembly size shall at minimum be no less than half the diameter of the feed line to the primary backflow prevention assembly. [Example: If the feed line has a diameter of four inches (4") and is feeding a four inch (4") backflow prevention assembly. Then the duplicate backflow prevention assembly shall be a minimum two inches (2").]
- (g) The expense of installation and/or repair of a backflow prevention assembly shall be the sole responsibility of the owner or occupant of the premises.
- (h) A backflow material shop drawing shall be submitted to City of Alcoa Engineering Department prior to installation for approval showing which backflow prevention assembly is planned to be installed. This submittal must show, at minimum, manufacturer, model, size, and how the device is planned to be installed.
- (i) All lawn irrigation systems shall have backflow devices. These shall be installed:
  1. So that the relief valve discharge port opening is a minimum of sixteen inches (16") above the finished grade elevation.
  2. In an area free from submergence or flood potential. The device cannot, under any circumstances, be installed in a pit or hole.
  3. On the service line after the water meter (on the property owner's side) and before the first branch line leading off the service line.

4. In accessible areas. The backflow device shall not be placed in areas including, but not limited to, locked enclosures, fenced areas, backyards, pool houses, garages, under decks, or porches, etc.
  5. So that the backflow device is always accessible for the tester. If the device is in heavy shrubbery, a four-foot (4') wide minimum path to the backflow device is to be maintained by the customer to allow access for the tester.
  6. With no form of by-pass around the backflow device.
- (j) Commercial and Industrial backflow devices shall be installed:
1. On the service line after the water meter, and before the first branch line leading off the service line.
    - a. Outside: The device shall be installed so that the relief valve discharge port opening is a minimum of fourteen inches (14"), plus nominal diameter of the supply line, above the finish grade underneath the device.
    - b. Inside: The device shall be installed so that the relief valve discharge port opening is a minimum of twenty-four inches (24"), plus nominal diameter of the supply line, above the finish grade underneath the device.
    - c. The maximum height in both cases (outside or inside) is not to exceed seventy-two inches (72") from finish elevation to the highest test fitting on the backflow device.
  2. In an area that has adequate lighting and accessibility space to allow for inspection and/or repairs, and free from any known hazards including, but not limited to, tripping and/or chemicals.
  3. In an area free from submergence or flood potential. The device cannot, under any circumstances, be installed in a pit or hole.
  4. No closer than six inches (6") to a wall or other obstructions. All test fittings and valves should not be facing wall and/or other obstructions. If test fittings and/or valves must face the wall or other obstructions due to orientation of the device, then the device shall be at a minimum of twenty-four inches (24") clearance from the wall or other obstructions to the closest point of the finished assembly device will be allowed.
  5. With all test cocks, fittings, and valves as required for testing of the assembly device. Modifications to the test cocks, fittings, and/or valves will not be allowed.
  6. In an area with an adequate drain. The device shall be equipped with a drain line from the relief valve discharge port opening to the drain opening. If area is not equipped with a drain, then the drain line can go through the wall to daylight outside. The size of the drain line shall be, at minimum, the same size or greater than the nominal diameter size of the feed line to the device.

- (k) The backflow prevention assembly shall not be considered as an approved backflow prevention device until a performance evaluation has determined it to be a “passed” device.

#### **1.1.10 Booster Pump Stations**

*Add:*

- (k) When possible, new Booster Pump Stations shall be of the pre-engineered type, as approved by the City of Alcoa.

#### **1.2.16 Corporation Stops**

*Original:*

- (e) Corporation stops shall be Mueller Company, Catalog No. H-15000, The Ford Meter Box Company, Catalog No. F600, or approved equal, or any succeeding catalog numbers from these manufacturers.

*Revise:*

- (e) Corporation stops shall be Ford F1001-3-Q-NL compression fittings. Muller and AY McDonald comparable parts are approved equals. Internal stiffeners are required when attaching to PEX pipe.

#### **1.2.2 (h) Pipe**

*Original:*

- (h) Means of detecting pipe and fittings are:
  1. Detectable warning tape;
  2. 12-gauge coated tracing wire; or
  3. Pre-approved metallic detectable conductor.

*Revise:*

- (h) Means of detecting pipe and fittings shall be copper tracing wire, as manufactured by Copperhead Industries. The wire shall be 12-gauge SuperFlex™ – 1230 CCS Tracer Wire or approved equal. (Reference Section 1.3.4 (h) for installation methods.)

#### **1.3.4 (h) Installing / Repairing Distribution Pipes**

*Original:*

- (h) Means of Detecting Pipe: When pipe is installed, a minimum size 12-gauge copper wire shall be installed along the pipe, regardless of the material. The ends of the wire shall terminate in a valve box or other acceptable location – having an excess length of at least 2 feet beyond the valve box opening or other access point – whereby detection equipment may be attached. Reference 1.2.2 (h) Means of Detecting Pipes and Fittings.

*Revise:*

(h) Means of Detecting Pipe:

1. When pipe is installed, 12-gauge Copperhead SuperFlex™ – 1230 CCS Tracer Wire shall be installed along the pipe, regardless of the material.
2. The wire shall be placed loosely along the sides of the pipe and tucked in underneath before backfill begins. The wire shall not be stretched tightly along the length of the pipe, placing it in tension, and allowing it to be easily broken as backfill is placed in the trench.
3. The ends of the wire shall terminate in a valve box or other acceptable location – having an excess length of at least two feet (2') beyond the valve box opening or other access point – whereby detection equipment may be attached.
4. After wire is placed and trench is backfilled, wire shall be tested to make sure the circuit has remained complete and unbroken.
5. See “1.2.2 (h) Means of Detecting Pipes and Fittings”

**1.3.6 Installing/Repairing Water Lines in Street, Highway, and Railroad Rights-of-Way**

*Add:*

- (d) Any utility installed within three feet (3') of pavement shall be backfilled with gravel to grade.