BRUNSWICK & TOPSHAM
WATER DISTRICT

Water Main
Material Specifications

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Brass (Corporations, Curb Stops and Fittings)

Standards – (Use latest revisions)

1. Brass shall be an UNS Copper Alloy C89833 in accordance with requirements of ASTM B584 for compositions and mechanical properties.
2. Underground Service Line Valves and Fittings ANSI/AWWA C800
3. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. All brass fittings shall have a stamp indicating the manufacture.
3. All brass fittings shall have a stamp "NL" indicating "no lead".
4. All brass fittings shall be manufactured in the US or Canada.
5. All compression connections shall be Quik Style compression fitting.
6. All corporations shall be CC threads on the inlet and full port opening.
7. All corporations and curbs shall be size on size.
8. All curb stops shall have a brass ball that is teflon coated or teflon seats
9. All curb stops shall not have a drain hole and open with ¼ turn with a stop.

Acceptable Manufacturers

1. A. Y. McDonald Mfg. Co., Dubuque, IA

Fittings – Ductile Iron

Standards – (Use latest revisions)

1. Ductile-Iron Compact Fittings for Water Service ANSI/AWWA C153/A21.53
2. Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings ANSI/AWWA C111/A21.11
3. Cement–Mortar Lining for Ductile-Iron Pipe and Fittings ANSI/AWWA C104/A21.4
4. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. Mechanical joints are required unless otherwise specified by the District.
3. All fittings shall be manufactured in the US or Canada.
4. Class 350 pressure rating.
5. Fittings shall be double cement lined.

Acceptable Manufacturers

1. Tyler Union Foundry, Tyler, TX

Hydrant

Standards – (Use latest revisions)

1. Dry-Barrel Fire Hydrants ANSI/AWWA C502
2. Protective Interior Coatings for Valves and Hydrants ANSI/AWWA C550
3. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. All water-way surfaces shall be fully coated with a corrosion resistant epoxy protective coating, which meets or exceeds the requirements of ANSI/AWWA C550.
3. Hydrant shall have a minimum valve opening of 5 ¼" and shoe inlet of 6" MJ.
4. Outlet nozzle configuration shall be two (2) two and one-half inch NST and one (1) four and one-half inch NST.
5. Hydrant shall have no drain hole or it should be plugged.
6. Operating nut shall be one and one-half inch bromze pentagon, open right.
7. Depth of bury shall be sized to allow breakaway flange to be within 3-9-inches of finish grade.

Acceptable Manufacturers

1. American Darling B84 B5, Birmingham, AL

Nuts and Bolts

Standards – (Use latest revisions)

1. Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings ANSI/AWWA C111/A21.11

Options and Modifications to the Standards

1. For high strength/low alloy steel bolts Corten meeting referenced standards
2. For stainless steel use Type 304 unless specified otherwise.

Acceptable Manufacturers

1. North American Manufacturers

Pipe Joint Restraint

Standards – (Use latest revisions)

1. Ductile-Iron Pipe ANSI/AWWA C151/A21.51
2. Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings ANSI/AWWA C111/A21.11
3. Standard Specification for Ductile Iron Castings ASTM A536

Options and Modifications to the Standards

1. The joint restraint ring and its wedging components shall be made of ductile iron conforming to ASTM A536.
2. Dimensions of the restrainer must allow use with standard M.J. bell conforming to AWWA C111 and AWWA C153
3. Restrainer must restrain up to 350 psi of working pressure in 3" to 16" sizes and 250 psi of working pressure in 18" to 48" sizes with a 2:1 safety factor.

Acceptable Manufacturers

1. Romac Gripring (Diameters 12-inch and less), Bothell, WA
2. Romac Romagrip (Diameters greater than 12-inch), Bothell, WA
3. EBBA Mega Lug (Diameters greater than 12-inch)Eastland, TX
4. Fast-Grip Gasket, Birmingham, AL

Polyethylene Encasement

Standards – (Use latest revisions)

1. Polyethylene Encasement for Ductile-Iron Pipe Systems ANSI/AWWA C105/A21.5

Options and Modifications to the Standards

1. Where polyethylene encasement is specified, tube type polyethylene encasement shall be installed on all ductile iron pipe and fittings in accordance with ANSI/AWWA Standard C105/A21.5, Method A.
2. Polyethylene encasement shall be either linear low-density polyethylene (LLDPE) film with a minimum thickness of 8-mil or high-density, cross-laminated polyethylene (HDCLPE) film with a minimum thickness of 4-mil.
3. Circumferential wraps of tape or plastic tie straps shall be placed at 2-ft. intervals along the barrel of the pipe.

Acceptable Manufacturers

1. Approved on a case by case basis

Service Box and Rod

Standards – (Use latest revisions)

1. Standard Specification for Gray Iron Castings ASTM A48/A48M

Options and Modifications to the Standards

1. Cast service box components shall be heavy cast iron in conformance with ASTM A48, Class 30B.
2. Service Box - Shall be 1.0" Schedule 40 steel pipe with top having 1.0" N.P.T. pipe threads for screw-on cover or coupling.
3. Service Box shall be Erie style with slide-type riser.
4. Service Box extensions require a threaded coupling with no set screw.
5. Service Box Cover shall be plug type cover that screws on service box.
6. Service Box Cover shall be tapped with a 1" rope thread with a solid brass plug with pentagon operating head.
7. Service Box Foot Piece shall have an arch that will fit over 2" ball-valve curb stops.
8. Service Rod shall have a self aligning design.
9. Service Rod shall be round and constructed of stainless steel Type 304.
10. Service Rod shall use a curb-stop attachment cotter pin that is brass.
11. Service Rod the rod "wrench-flat" shall have a minimum thickness of ¼" tapered to 1/16" and width of 9/16".

Acceptable Manufacturers

1. North American Manufacturers

Service Saddles

Standards – (Use latest revisions)

1. Underground Service Line Valves and Fittings ANSI/AWWA C800
2. Protective Fusion-Bonded Epoxy Coatings ANSI/AWWA C116/A21.16
3. Standard Specification for Ductile Iron Castings ASTM A536
4. Standard Classification System for Rubber Products ASTM D2000
5. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. Ductile iron grade 65-45-12.
3. Threads type CC.
4. Finish - 10 mils fusion applied nylon coating.
5. Straps, bolts, nuts and washers: stainless steel Type 304.
6. Minimum of two straps, each providing two inches or greater of bearing area.

Acceptable Manufacturers

1. Romac Style 202N, Bothell, WA

Tapping Sleeves

Standards – (Use latest revisions)

1. Steel Pipe Flanges for Waterworks Service ANSI/AWWA C207
2. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. For size on size taps a ductile iron tapping sleeve is required, for tap diameters smaller than supply main diameter stainless steel sleeves are permitted.
3. Tapping sleeves shall conform to AWWA C-207, Class D, with rated maximum working pressure of 200 psi.
4. All sleeve and flange outlet bolts shall be stainless steel Type 304.
5. All surfaces not stainless steel shall be bituminous coated with a minimum of 4 mils dry film thickness or fusion bonded epoxy coated.
6. The sleeve shall be provided with a ¾" F.I.P.T. test port and brass plug for ductile and 304 ss plug for stainless steel sleeves.
7. Ductile iron tapping sleeves shall be mechanical joint with recessed outlet flange for tapping valve. The side rubber gaskets shall be rectangular in cross-section and fit into grooved channels in the casting. These gaskets shall extend the entire length of the sleeve and shall not require cutting or trimming to match MJ end gaskets.
8. Ductile iron tapping sleeve shall be AB-CD pattern to permit use of plain rubber and duck-tipped gaskets for various O.D. piping sizes.
9. Stainless steel tapping sleeves shell shall be type 304 MIG welded and fully passivated.
10. Stainless steel tapping sleeves shall have a ductile iron flange welded to the neck.

Acceptable Manufacturers

1. Ductile iron tapping sleeves: American Flow Control 2800 series, Birmingham, AL
2. Stainless steel tapping sleeves: Romac SST series, Bothell, WA

Valve Boxes

Standards – (Use latest revisions)

1. Standard Specification for Gray Iron Castings ASTM A48
2. Ductile-Iron Compact Fittings for Water Service ANSI/AWWA C153/A21.53

Options and Modifications to the Standards

1. Valve boxes and covers shall be heavy cast iron in conformance with ASTM A48, Class 30B.
2. Valve boxes shall be cast iron, two piece, sliding type with a top flange and a minimum inside shaft diameter of 5 ¼-inches.
3. Boxes shall have the word "water" clearly cast into the cover.
4. Valve Boxes shall have a 36” top and a 48” base, unless otherwise directed by District.
5. Valve box and component bituminous coating shall meet the exterior coating requirements of ANSI/AWWA C153/A21.53

Acceptable Manufacturers

1. North American Manufacturers

Water Pipe – Ductile Iron (DI)

Standards – (Use latest revisions)

1. Ductile-Iron Pipe ANSI/AWWA C151/A21.51
2. Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings ANSI/AWWA C111/A21.11
3. Cement–Mortar Lining for Ductile-Iron Pipe and Fittings ANSI/AWWA C104/A21.4
4. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. Push-on joints unless otherwise specified by the District.
3. Class 52 unless otherwise specified by the District.
4. Pipe shall be double cement lined.
5. Pipe shall be zinc coated with 200g/m^2 per ISO 8179-1
6. Diameters 6-inch and greater shall be 20 feet in length unless otherwise specified by the District.
7. Pipe shall be warranted in writing from the supplier to be free of defects for 10 years, any replacement shall include all associated labor costs and will be at “no charge” to the District.

Acceptable Manufacturers

1. American Pipe, Birmingham, AL

Water Pipe – Polyvinyl Chloride (PVC)

Standards – (Use latest revisions)

1. Standard Specification for Polyvinyl Chloride (PVC) Pressure-Rated Pipe ASTM D2241
2. Elastomeric Seals (Gaskets) for Joining Plastic Pipe ASTM F477
3. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. For all water main installations that are less than 4-inch (4-inch and larger use ductile iron), the District will require use of 2-inch PVC water pipe. Under special site conditions the District does require the use of C-900 PVC in sizes larger than 4-inch.
3. SDR 21 for 2-inch unless otherwise specified by the District.
4. Tracer wire shall be HMW-PE insulation, 45 mils, blue, 12-AWG solid copper.
5. Diameters 2-inch and greater shall be 20 feet in length unless otherwise specified by the District.
6. Pipe shall be warranted in writing from the supplier to be free of defects for 10 years, any replacement shall include all associated labor costs and will be at “no charge” to the District.

Acceptable Manufacturers

1. J-M Eagle, Livingston, NJ or IPEX Inc, Verdun, QC

Water Service Pipe – Copper (Cu)

Standards – (Use latest revisions)

1. Federal Specification WW-T 7996
2. Standard Specification for Seamless Copper Water Tube ASTM B75 & ASTM B88
3. Standard Specification for Seamless Copper Water Tube, Bright Annealed ASTM B68
4. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. Type K
3. Services shall be one solid piece unless otherwise specified by the District.

Acceptable Manufacturers

1. Weiland Copper Products, LLC., Pine Hill, North Carolina

Water Service Pipe – Polyethylene (PE)

Standards – (Use latest revisions)

1. Polyethylene (PE) Pressure Pipe and Tubing for Water Service ANSI/AWWA C901
2. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. For all water service installations that are 2-inch the District will permit the use of 2 PE pipe. (For all larger installations DI pipe is required. For all smaller installations copper pipe is required.)
3. Pipe shall be CTS pipe rated for 200 psi unless otherwise specified by the District.
4. Tracer wire shall be HMW-PE insulation, 45 mils, blue, 12-AWG solid copper.
5. Services shall be one solid piece unless otherwise specified by the District.

Acceptable Manufacturers

1. ADS / Hancor, Inc., Hilliard, OH

Water Valve – Butterfly Valve

Standards – (Use latest revisions)

1. Rubber-Seated Butterfly Valves ANSI/AWWA C504
2. Protective Fusion-Bonded Epoxy Coatings ANSI/AWWA C116/A21.16
3. Protective Interior Coatings for Valves and Hydrants ANSI/AWWA C550
4. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. All water-way surfaces shall be fully coated with a corrosion resistant epoxy protective coating, which meets or exceeds the requirements of ANSI/AWWA C116/A21.16 or NSI / AWWA C550, whichever is stricter.
3. All valves shall have an exterior corrosion resistant epoxy protective coating. Valves shall have 301 stainless steel bolts and nuts for direct bury.
4. All valves shall be open right with 2” square ductile iron operating nut.
5. Butterfly valves shall be MJ fitting unless otherwise specified by the District.
6. Valves shall have bevel gear operators driven by the operating nut., with a 4:1 bevel gear operators. Number of turns to open or close shall closely match the formula: ((3 x D) + 2) x 4.
7. Butterfly valves acceptable for mains and services 16-inches in diameter and larger.

Acceptable Manufacturers

1. Henry Pratt Company, Aurora, IL

Water Valve – Resilient Seated Valve

Standards – (Use latest revisions)

1. Resilient-Seated Gate Valves for Water Supply Service ANSI/AWWA C515
2. Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service ANSI/AWWA C515
3. Protective Fusion-Bonded Epoxy Coatings ANSI/AWWA C116/A21.16
4. Protective Interior Coatings for Valves and Hydrants ANSI/AWWA C550
5. Drinking Water System Components – Health Effects NSF/ANSI 61

Options and Modifications to the Standards

1. Materials in contact with potable water shall be certified NSF/ANSI 61 per the standard.
2. Resilient wedge valve shall be completely manufactured of light-weight, high strength ductile iron with a wall thickness, which meets or exceeds the requirements of ANSI/AWWA C515.
3. All water-way surfaces shall be fully coated with a corrosion resistant epoxy protective coating, which meets or exceeds the requirements of ANSI/AWWA C116/A21.16 or NSI / AWWA C550, whichever is stricter.
4. All valves shall have an exterior corrosion resistant epoxy protective coating. Valves shall have 301 stainless steel bolts and nuts for seal plate and bonnet.
5. All valves shall be open right with 2” square ductile iron operating nut.
6. Gate valves shall be MJ fitting unless otherwise specified by the District (e.g. tapping sleeves)
7. Gate valves acceptable for mains and services 4-12-inches in diameter.

Acceptable Manufacturers

1. American Flow Control 2500, Birmingham, AL