RULES AND REGULATIONS
FOR
WATER AND WASTEWATER SERVICE

EAGLE RIVER
WATER & SANITATION
DISTRICT

APPENDIX B

WATER AND WASTEWATER SERVICE CONSTRUCTION SPECIFICATIONS

Last Approved Revision: March 1, 2025

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SECTION 1 - GENERAL

1.1 Authority

The Standard Specifications for Water and Wastewater Service Line Construction as set forth herein ("Specifications") are promulgated by the following: Arrowhead Metropolitan District, Bachelor Gulch Metropolitan District, Beaver Creek Metropolitan District, Berry Creek Metropolitan District, Cordillera Metropolitan District, Eagle River Water & Sanitation District, Eagle-Vail Metropolitan District, Edwards Metropolitan District, Town of Avon, Traer Creek Metropolitan District (Village at Avon), and Upper Eagle Regional Water Authority ("District"). The interpretation and enforcement of said Specifications is hereby delegated to the Regulations Administrator of the Eagle River Water & Sanitation District.

1.1.1 Effective Date of Specifications

The Specifications shall become effective immediately upon formal adoption by the District and shall supersede all former specifications for Water and Wastewater Service Line construction. The most current version of these specifications is available at www.erwsd.org.

1.1.2 Revisions, Reference, Amendments, or Additions

The Specifications may be revised and/or amended. Such revisions, amendments, and additions shall be binding and in full force immediately upon formal adoption by the District.

The latest edition of the International Plumbing Code (IPC) is incorporated herein by reference. In cases where conflicts arise between these Specifications and IPC, the more stringent shall prevail.

1.1.3 Definitions

Please reference the Rules and Regulations for Water Service Line and Wastewater Service Line, Article 2.

1.2 Development Approval and Infrastructure Acceptance

Please reference the Rules and Regulations for Water and Wastewater Service, Articles 8 and 9, respectively.

1.3 Variance

The District recognizes that the strict and literal interpretation of these Rules and Regulations may not be possible in all cases. Please refer to Article 7 for information on the Variance process.

1.4 Purpose

These Water Service Line and Wastewater Service Line construction specifications are intended to ensure that the service line extending from the Water System and Wastewater System are constructed so as to not adversely impact the Water System or Wastewater System. The extent of Water Service Line and Wastewater Service Line is as defined in the Rules and Regulations, Article 2, 2.126 and 2.121, respectively.

1.5 Authorization to Connect

This Appendix provides construction specifications, including testing and inspection requirements related to Services, but does not include all of the requirements for Connection to the Water and/or Wastewater Systems. Customers intending to make a Connection must contact the District prior to any construction or work on the Water Service Line or Wastewater Service Line so that all requirements for Connection can be determined. A complete description of the requirements for Connection can be found in these Rules and Regulations, refer to Article 4, Authorization to Connect to Water and Wastewater Systems.

Customers must submit a completed Application (available at www.erwsd.org), a completed water fixture count form, a copy of the approved building permit, the associated approved architectural plans, and a utility plan outlining the following items for both Water and Wastewater Service Lines.

- Proposed service line layout/ alignemnt
- Pipe Materials
- Pipe Sizes
- Depths of Bury
- Curb stop location
- Proposed main line tie in locations
- Utility crossings identified and mitigated by proper separation or by secondary containment.
- Tracer wire installation plan as outlined in Appendix E.
- Meter pit plan submittal (if applicable).

Water Service Lines must be sized appropriately, and velocities for maximum domestic use must be under 10fps. Under no circumstance may the Water Service Line from the water main to the meter be sized smaller than the meter.

1.6 Services and Meters

Each separately metered unit shall have a separate and independent Water and Wastewater Service Line connection to the main. Along with the Application, the customer shall submit a schematic/diagram for the mechanical room or location where the meter assembly for domestic use, irrigation use and the fire suppression system are to be installed. This diagram should demonstrate conformance to the Rules and Regulations Detail B-05. Meter size and type are determined by the District after the submittal of the water fixture count form.

1.7 Scheduling Inspections

The Customer shall notify the District when the Water or Wastewater Service Line is ready for inspection or Connection to the Water or Wastewater Main. Appointments for inspections, testing, Connection, meter inspection, Turn-On, Turn-Off, abandonment of service lines, or operation of Water Main valves must be scheduled with the District a minimum of two (2) business days in advance.

1.8 Joint Service Lines

Joint Water or Wastewater Service Lines are prohibited.

1.9 Stub Outs

Stub outs are for the benefit of the property and are not guaranteed to exist; the location, depth, size, and pipe material may or may not be known. If a service line stub out is not in compliance with current Rules and Regulations, the Customer shall be responsible for modifying or replacing the stub out to meet current specifications. If the existing stub out will not be utilized it must be abandoned at the customer’s expense prior to a lot line vacation or any additional taps to the water main for the same property.

SECTION 2 - WATER SERVICE LINES

2.1 Materials

2.1.1 General Requirements

The District follows, and all Water Service Line construction shall conform to, the CDPHE lead-free policy. The joining of dissimilar metals in Water Service Lines is prohibited.

2.1.2 Copper Tubing

Copper Water Service Lines shall be 1", 1.5" or 2" diameter seamless Type K copper tubing in accordance with ASTM B88. Connections shall be compression in accordance with ANSI/AWWA C800 or silver soldered conforming to AMS 4773C. All shall be certified to comply with NSF/ANSI 61, NSF/ANSI 61 Annex G, and NSF/ANSI 372. No lead solder joints shall be allowed. All copper service lines must use full lengths of tubing (i.e., 100' for 1", 60' for 1.5" and 40' for 2") before a splice can be installed.

Installed Type K copper tubing shall be free of kinks, indentations, and damaged areas. Copper tubing must be properly reamed at all connections. Any damaged copper tubing or fittings may be rejected by the District Inspector.

An appropriate size gooseneck shall be made in the Water Service Line at the corporation valve to prevent the Service from being pulled from the Water Main during backfill and compaction operations.

2.1.3 Polyethylene Tubing (PE)

Polyethylene tubing used for Water Service Lines shall meet the requirements of AWWA C901, shall be PE4710 high density resin material and conform to ASTM 2737 standards listed for Water Service Line pipe in the latest edition of the IPC. All joints shall be brass compression grip ring type with stainless steel inserts or fused. Polyethylene tubing shall have a pressure rating of 250 psi. All new polyethylene service lines shall be constructed using full lengths of new polyethylene tubing. Splices are not permitted on new service line installations. Pipe dimensions shall meet Copper Tubing Size (CTS) standards.

2.1.4 Ductile Iron Pipe (DIP)

Water Service Lines greater than or equal to four (4) inches in diameter are to be constructed of ductile iron pipe, AWWA Class 52, with a pressure rating of 350 psi. Services to be constructed of ductile iron pipe must be designed by a licensed engineer and construction plans must be submitted to the District for approval.

2.1.5 Corporation Stops

Corporation stops shall be constructed of all brass construction with threaded taper or IP thread inlet and grip compression connection out in accordance with ANSI/AWWA C800 and conform to ASTM B584, UNS C89833 (latest revision). Corporation stops shall be Mueller 300 Ball Type Corporation Valve, Catalog Number B-25008N or B25028N or approved equal.

2.1.6 Curb Stops

Curb stops shall be of all brass construction with compression connections for inlet and outlet in accordance with ANSI/AWWA C800 and conform to ASTM B584, UNS C89833 (latest revision). Curb stops shall be Mueller 300 Ball Curb Valve No. B25209N, or approved equal. For service lines buried at a depth greater than nine and a half (9.5) feet, an extension rod must be placed on the curb stop.

2.1.7 Curb Boxes

Curb boxes shall be cast iron in accordance with ASTM A 48, Class 35B. For curb stops up to 1", curb boxes shall be Mueller H10314 with 89982 lid and stationary rod, part number 828- series, depending on final bury depth or approved equal. For curb stops larger than 1", the curb boxes shall be Mueller H10336 with 89982 lid or approved equal.

2.1.8 Saddles

Tapping saddles shall be Mueller BR2S or BR2W, AWWA C800, brass body, 200 psi maximum working pressure, double strap design, with optional 304L stainless steel straps.

2.2 Service Line Design

The alignment of the Water Service Line shall take the shortest, most direct route from the Water Main to the Water Meter. Any existing piping that has been used for irrigation, fire protection, or any other non-potable purpose is not permitted to be converted to a potable water supply service line.

2.3 Grooved Pipe and Fittings

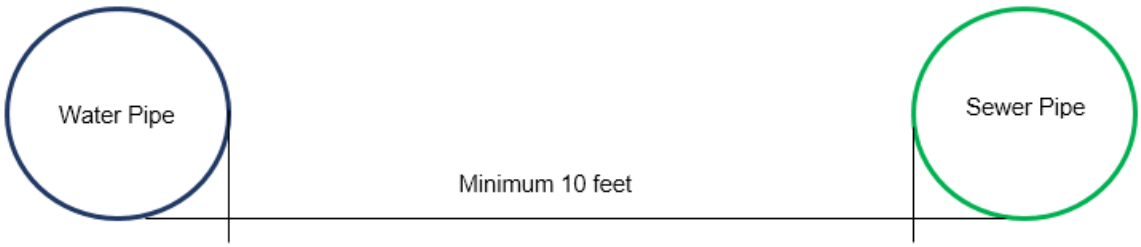
Fire suppression systems must be designed by a fire suppression engineer. Approvals and inspections are performed by the fire marshal with jurisdiction over the area. The District requires that all materials installed ahead of the Backflow Preventor shall be NSF/ ANSI 61 certified, NSF/ANSI/CAN 372 certified and have a working pressure of 250 psi. Grooved fittings are allowable if they meet the standards listed above and specification sheets are provided during the review process.

2.4 Separation of Services

2.4.1 Parallel Installation of Mains, Services and Appurtenances

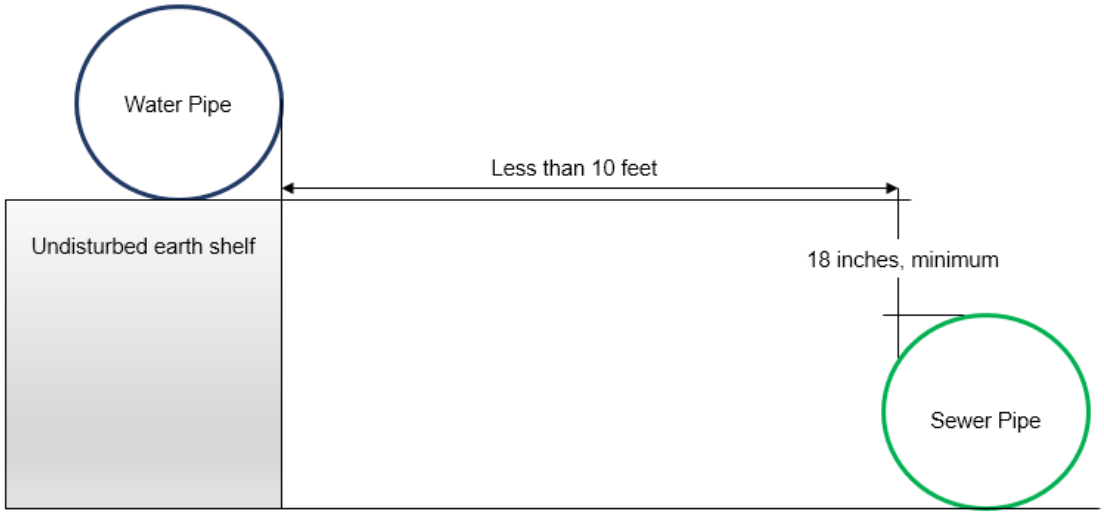
Water mains and services must be laid a minimum of ten feet (10) horizontally (edge to edge) from any existing or proposed non-potable infrastructure (i.e., Wastewater Mains, Wastewater Services, Wastewater Appurtenances, Raw Water Pipes, storm sewer pipes, septic tanks, or subsoil treatment systems).

For parallel water services in a common trench, a minimum horizontal separation distance of six inches (6) must be maintained between edge of pipe to edge of pipe. Water services must be installed on the same horizontal plane, i.e. no vertical separation. This does not apply to the connection point at the water main. Water service line taps must be a minimum of eighteen inches (18) apart.



2.4.2 Parallel Horizontal Separation Exception

In cases where it is not practical to maintain a ten foot (10) separation, the District may allow the installation of the water main or water service line closer to a non-potable pipe given the following requirements are met. The water line is on a separate trench or on an undisturbed earth shelf located on the “uphill” side of the non-potable pipe and at an elevation, so the bottom of the water line is at least eighteen inches (18) above the top of the non-potable pipe. The non-potable pipe must be pressure rated to 150 psi meeting AWWA standards and must pass a pressure test to ensure water tightness.



2.5 Crossings of Mains and Services

Water mains and service lines that cross existing or proposed non-potable pipes must be installed a minimum of eighteen inches (18) vertically outside edge to outside edge. At crossings, one full length of water pipe must be located so both joints will be as far from the non-potable pipe as possible.

2.5.1 Vertical Separation Exception

If the non-potable pipe crosses a water main or service, and there is less than eighteen inches (18) vertically between the outside edges of the pipes, the non-potable line must be installed with secondary containment.

Acceptable options for secondary containment include a pipe casing extending no less than nine feet (9) each side of the crossing. The pipe casing must be a single section of steel, ductile iron, or polyvinylchloride (PVC) with casing pipe end seals and no joints. The design must include a means to support the interceptor or non-potable pipe to prevent settlement and permit maintenance of the water pipe without damage to either pipe. Alternatively, concrete or controlled low strength material (e.g., flowable fill) encasement of either pipe extending no less than ten feet (10) each side of the crossing may be used. **Crossings involving jointless pipe such as HDPE or copper do not require installation of secondary containment.**

2.6 Depth of Bury

Water Service Lines shall be buried a minimum of seven (7) feet and a maximum of nine and a half (9.5) feet below the ground surface.

2.6.1 Service Insulation Requirements

For every foot of cover that is out of compliance with minimum cover requirements for Water Service Lines, the District shall require the installation of insulation board per Appendix E 1.14. The absolute minimum cover over a Water Service Line, when insulation is used, shall be 5 feet. Cover of less than 7 feet shall only be allowed with written approval from the District prior to construction. In addition to maintaining cover from the ground surface, specified cover is required from storm sewer crossings and other cold air sources. See Insulation detail C-14 in Appendix C.

2.7 Bedding Material

Bedding material shall consist of uniformly graded granular material, 3/8-inch or ¾-inch minus screened rock material, installed six (6) inches below and twelve (12) inches above the service line. Refer to Appendix E.

2.8 Underground Warning Tape

Underground warning tape shall be installed twenty-four inches (24”) above all buried portions of the Water Service Line. The tape shall meet the following requirements:

(a) Four (4) mil thick Polyethylene tape
(b) Solid blue color with black lettering
(c) Six (6) inches in width

2.9 Tracer Wire

See Appendix E.

2.10 Curb Stop Location

The Curb Stop shall be located a within maximum of one (1) foot the property line or edge of easement, whichever is closest to the water main, and shall be easily accessible to District personnel. For new service line installations Curb Stops shall not be located underneath heated driveways. Refer to curb stop detail B-01 and B-02 for services less than or equal to 2” and B-03 and B-04 for services greater than or equal to 4”.

2.11 Fire System Services

Installation, inspection, and testing of underground fire lines shall meet all current adopted International Fire Code, NFPA 24 – Standard for the Installation of Private Fire Mains and their Appurtenances, and local fire authority requirements. All installation work shall be performed by a contractor holding a State of Colorado Division of Fire Prevention and Control certification for underground fire line installation. Commercial Water Service Line connections for fire suppression systems shall be as required by the local fire authority. Residential connection of the fire suppression system to the Water Service Line shall occur downstream from the Curb Stop valve and upstream of the meter. Refer to Detail B-05.

2.12 Connections, Testing and Requirements for Inspection

2.12.1 Water Service Line Connections

Water Service Lines smaller than four inches (4”):

All Water Service Line connections of 1", 1.5”- and 2-inch diameter shall be made only by District personnel using a tapping saddle fitting on existing mains.

Service lines four inches (4”) or larger in diameter:

Water Service Line Connections 4 inch (4”) in diameter or greater shall be made by a qualified contractor on behalf of the Customer and witnessed and inspected by a District Inspector. For all connections 4" in diameter and larger, a tee shall be installed on the main or a wet tap may be made using a tapping sleeve with prior approval from the District. The tapping sleeve shall be stainless steel Mueller H304 (250 psi working pressure) or approved equivalent. The use of a tapping sleeve shall meet the following conditions:

Tapping sleeve must be approved by the District prior to installation and may only be installed by an approved contractor.

System working pressures shall not exceed the tapping sleeve's rated working pressure.

Tapping sleeves shall not be permitted for service lines with a diameter that is equal to or greater than one-half (½) the diameter of the main being tapped.

Tapping sleeves shall not be permitted for service connections larger than 6" in diameter. A tee shall be installed on the Water Main.

2.12.2 Water Service Line Testing

Water Service Lines smaller than four inches (4"):

No disinfection is required on service lines smaller than 4". Hydrostatic testing of the service line shall use system pressure. The contractor shall backfill the trench at their own risk. Pressure is held for a minimum of two hours and will be accepted if no leaks are measured or observed. If the test fails, the service line will need to be repaired or replaced. In winter conditions, compressed air to 50 psi may be used for testing at the discretion of the District Inspector. Verification required to ensure that pressure has been holding for at least two (2) hours (time stamped photos are acceptable).

Service lines four inches (4") or larger in diameter:

The District Inspector will perform high chlorine, low chlorine, bacteriologic, and hydrostatic testing on the Service, similar to a water main. Details of the testing procedures can be found in Appendix C, Section 5. Customer shall provide a minimum of two days advance notice to schedule testing. The testing process typically requires a minimum five-day duration before water service can be turned on. Failure to pass these tests will result in the Customer flushing the Service and the District retesting the Service.

2.12.3 Water Service Line Requirements for Inspection

No Water Service Lines shall be covered with bedding material or backfill without the District Inspector's approval. All portions of the Water Service Line must be visible to the District Inspector for an inspection to be completed.

District personnel must attend all underground Fire Protection Service flush tests in order to operate Curb Stop valves. All Water Service Line ends shall be capped or covered with a mechanical cap after flush tests until meter assembly installation as required by the local fire authority.

The District shall be notified a minimum of two business days prior to testing.

Customers requesting Connections after November 15 and before April 15 must provide heating, adequate to prevent freezing of water, in the Connecting area.

2.13 Water Service Line Abandonment

For abandonment of 2-inch and smaller Water Service Lines or stub outs, the corporation stop must be shut off and capped at the water main and the line disconnected. For abandonment of 4-inch or larger Water Service Lines or stub outs, a mainline shutdown must be coordinated with a District Inspector, the curb stop valve and lateral will be removed, and a MJ flange or plug installed on the main line tee. Alternatively, a solid sleeve on the mainline is an acceptable abandonment method. All Water Service Line abandonments must be inspected by a District Inspector prior to backfill.

2.14 Meter Assemblies

The following criteria dictate the design and installation of commercial and residential meter assemblies. A meter assembly consists of a shutoff valve, strainer (if needed), pressure reducing valve (PRV), automatic valve (optional), water meter, backflow prevention assembly, and related appurtenances. All meter assemblies shall be designed and constructed per most recently adopted plumbing codes. Please refer to Detail B-05 for a schematic of the approved meter assemblies.

2.14.1 Shutoff Valves

A shut-off, or isolation, valve shall be installed upstream of the PRV. Additionally, a shut-off valve shall be installed downstream of the backflow preventer isolating the meter assembly to facilitate repairs. For service lines up to 3 inches, ball or gate valves will be allowed. For service lines 3” and above, only gate valves will be allowed. Butterfly valves are prohibited. Refer to detail B-05.

2.14.2 Strainer

If a Strainer is needed within a Meter Assembly, it shall be located between the shutoff valve and the pressure reducing valve (PRV). Strainers shall not be installed directly before or after the meter assembly.

2.14.3 Pressure Reducing Valve (Domestic)

A pressure-reducing valve (PRV) shall be installed on all Water Service Lines upstream of the water meter, ensuring that the water meter and the building plumbing system are protected from fluctuating water system pressures. Water Service Lines will not be turned on until the meter assembly including the PRV is installed. There shall be no PRV bypass lines, all service line branches shall have a PRV installed. The downstream pressure setting of the PRV shall not exceed 100 psi without written permission from the

District. A pressure relief valve shall not be used as a substitute for a pressure reducing valve. Customers are responsible for ownership, maintenance and operation of Pressure Reducing Valves. The district recommends periodic inspection and maintenance per the manufacturer's recommendations

2.14.4 Pressure Reducing Valve (Fire Suppression System)

A pressure-reducing valve (PRV) shall be installed on all fire sprinkler systems to ensure that they are protected from fluctuating water main pressures. The pressure setting of the PRV shall not exceed 200 psi without written permission from the District. Customers are responsible for ownership, maintenance and operation of Pressure Reducing Valves. The district recommends periodic inspection and maintenance per the manufacturer's recommendations.

2.14.5 Automatic Valve

If electing to install an automatic valve such as a water cop, it must be installed between the pressure reducing valve and the meter. There shall be a minimum of five times the diameter of straight pipe between the automatic valve and the water meter.

2.14.6 Water Meter

All domestic connections to the District's Water System shall include a Water Meter. The meter type and size shall be determined by the District. The District will provide the Customer with a meter once the Customer has paid the appropriate meter fee.

The Customer shall install the meter per the specifications below.

The location of the meter is subject to District approval. The meter location shall be adequately insulated to protect from freezing, fully accessible, adequately ventilated, well-lit, and shall not meet the definition of confined space, as defined by the Occupational Safety and Health Administration (OSHA), unless approved by the District. The design of meter pits must be approved by the District and shall be in conformance with Section 2.14. Meters in crawl spaces are not recommended. Crawl space meter installations are subject to written prior approval by the District. Any meter installation in a crawl space must have adequate lighting, adequate working room, and be within (3) feet of the opening.

The District shall inspect the installation of all water meters. The Customer will be provided with a three-strand wire for installation of a transmitter. Prior to meter inspection and water Turn-On, the Customer shall install the meter assembly and the wire from the meter location to an appropriate transmitter installation site. The transmitter will be located five (5) feet above ground in an accessible location free from snow that will provide year-round access for District personnel. The maximum distance

from the meter to the transmitter shall not exceed one hundred (100) feet without approval of the District. The Meter shall be no higher than three (3) feet above and no lower than six (6) inches above the floor, as measured from the bottom of the Meter. Water meters or associated flanges shall not be installed in a vertical orientation. Meters shall be installed in a horizontal and upright position (register must be facing up). Flanges connecting to the water meter shall also be installed in a horizontal position.

The Customer is solely responsible for protecting the meter from freezing, or any other physical damage.

No yokes or corner horns are permitted in new meter installations. Existing yokes and corner horns shall be removed when modifications are made to the meter set assembly e.g. when a pressure reducing valve is replaced.

Meter sets require a “straight pipe” for five times the diameter of the pipe upstream and three times the diameter of the pipe downstream of the meter for new installations of 1.5 inch and greater.

Water will remain turned off until the District accepts payment of all Connection fees.

2.14.7 Backflow Prevention Assemblies

Backflow prevention assemblies are required on all Water Service Lines. Installation of backflow prevention assemblies must be certified “Lead Free” for all new construction and replacement assemblies. The “Lead Free” requirement is for all types of assemblies (e.g. fire, domestic, irrigation, etc.). No backflow preventers will be allowed inside of meter pits associated with new construction. For all new construction, backflow preventers within the meter assembly shall be reduced pressure zone (RPZ) assemblies. Refer to Appendix G of these Rules and Regulations for Backflow Prevention regulations.

2.14.8 Meter Bypass Piping

Meter bypasses shall only be installed when disconnection of the water service is a life safety issue (e.g., schools and healthcare facilities). The meter bypass shall be equipped with isolation valves to allow for maintenance of the meter without interruption of Water Service to the customer. A District lock shall be installed on the bypass isolation valve, to be removed only by District personnel. The meter bypass shall only be operated by District personnel.

2.15 Stop and Waste Valves

Stop and waste valves are prohibited.

2.16 Meter Pits

Meter pits shall be adequately sized to contain the meter assembly and allow for maintenance of the assembly. Meters will be required to be installed in a precast concrete manhole with an overall depth of no less than 84 inches.

Meter pits shall be installed at the property line or the edge of easement, and downstream of the Curb Stop valve. A 5’ high 4” x 4” post shall be provided for the Radio Transmitter Unit. A 3-strand wire provided by the District shall be run from the meter to the top of the post. A ½-inch galvanized rigid conduit 24” in length shall be installed on the bottom of the post to protect the wire a minimum of 18” up from ground level. Refer to Detail B-06 and B-07.

Temporary meter pits must be completely removed after construction and repairs to the Water Service line are made per Appendix B-2.15

2.16.1 Manhole Bases

Precast concrete, ASTM C478, minimum 48-inch diameter or District approved alternative.

2.16.2 Manhole Sections

Precast concrete, ASTM C478, with the inside lip higher than the outside lip, minimum 48-inch diameter or District approved alternative. Concrete cone sections shall be eccentric.

2.16.3 Manhole Rings and Covers

For installations located in public rights of way manhole rings and covers shall be cast iron, ASTM A48, with a flat lid with the lettering “WATER” cast on the cover. Ring and cover combined weight shall be greater than 255 pounds and machined to fit securely with a non-rocking cover. Lid shall be waffle patterned, and able to withstand HS-20 traffic loading.

2.16.4 Manhole Steps

For concrete manholes only, non-skid steps shall be installed capable of carrying a load of 1,000 pounds, installed six (6) inches from the face of the manhole. The steps shall conform to ASTM C478 and be plastic coated.

2.16.5 Manhole Joint Sealant

Double RUBR-NEK LTM butyl rubber flexible gasket-type sealant shall be applied to all manhole joints with RUB'R-NEK primer. One (1) inch on 48-inch diameter manholes; 1.5 inch on all larger sizes.

2.17 Repair Couplings

Repairs to Water Service Lines located between the curb stop and the structure that require couplings shall be made only by the use of a silver-soldered joint or electrofusion for copper and HDPE, respectively. Solid sleeves are to be used with DIP. All repairs shall be inspected and approved by the District prior to backfill.

SECTION 3 - WASTEWATER SERVICE LINES

3.1 Materials

3.1.1 Polyvinyl Chloride (PVC) non-pressure

SDR-35/SDR-26

4 to 8 inches (4" to 8"): ASTM D3034, SDR-35/PS46 or ASTM D3034, SDR-26/PS115

Maximum pipe length shall be 20 feet (20'). Joint lubricant shall be supplied by the pipe manufacturer. Joint lubricant shall be non-toxic and water-soluble.

3.1.2 Polyvinyl Chloride (PVC) pressure

Yelomine: SDR-21, Restrained joint PVC pressure pipe and fittings having a minimum cell classification of 12454, as defined in ASTM D1784. Conform to ASTM D2241 "Standard Specifications for PVC, pressure rated pipe, 200 psi (SDR Series)."

AWWA C-900 for 4 " through 8" diameter pipe, pressure class 235 psi, DR18, with push-on joints and flexible elastomeric seals ASTM D3139/ASTM F477. All spigot ends shall be beveled to manufacturer's specifications with gaskets meeting ASTM F477 and joints in compliance with ASTM D3139.

For 1 ½" service lines utilizing an ejector pumping system, either Polyethylene (PE) or PVC shall be used. PE piping shall be AWWA C901, pressure class 150 psi. Joints shall be fusion type in accordance with AWWA C901. PVC shall be schedule 80 meeting the requirements of ASTM D1785, with solvent welded, socket type fitting meeting the requirements of ASTM D2467.

3.1.3 Ductile Iron

Pipe per ASTM A746, Class 52, 350 psi, AWWAC151. Push-on joints per ANSI/AWWA C111/A21.11. Factory applied Protecto 401, or equivalent, ceramic epoxy interior lining for DIP & fittings. U.S. Pipe and Foundry Company/Griffin Pipe Products or approved equal.

3.2 Service Line Design

The Wastewater Service Line gravity piping shall be four (4) inch or greater in diameter.

Gravity Wastewater Service Lines shall be installed at a constant grade of not less than one quarter (¼) inch per foot, (2%) with a minimum of bends and no glue joints.

Clean Outs should be installed every 100 feet, at every change of direction greater than 45 degrees, and a maximum of three (3) feet from the face of the building or inside the

building footprint with dual direction sweeps. Cleanouts located within ROW require a traffic rated cleanout cover.

If the service line is pressurized via lift station or ejector system, the service line shall be designed by an Engineer and submitted with the Application for review and approval by the District.

The service line must be electronically locatable from the Wastewater main to the structure or building being served, terminating at the cleanout located near the building footprint and applicable details in this Appendix. Refer to Appendix E.

If the Wastewater Service Line will be used in connection with a food service establishment, a Control Manhole shall be installed per the requirements in Article 6 section 6.10.6 and designed by an Engineer.

3.2.1 Separation of Services

Refer to Appendix B, Section 2.4

3.3 Depth of Bury

Wastewater Service lines shall be buried a minimum of four feet six inches (4’ 6”) and a maximum of fourteen feet (14) below the ground surface.

3.3.1 Service Insulation Requirements

For every foot of cover that is out of compliance with minimum cover requirements for Wastewater Service Lines, the District shall require the installation of insulation board per Appendix E 1.14. The absolute minimum cover over a Wastewater Service Line, when insulation is used, shall be 3 feet. Cover less than 4.5 feet shall only be allowed with written approval from the District prior to construction. In addition to maintaining cover from the ground surface, specified cover is required from storm sewer crossings and other cold air sources. See Insulation detail C-14 in Appendix C.

3.4 Bedding Material

Bedding material shall consist of uniformly graded granular material, 3/8-inch or ¾-inch minus screened rock material, installed six (6) inches below and twelve (12) inches above the service line. Refer to Appendix E.

3.5 Underground Warning Tape

Underground Warning Tape shall be installed twenty-four inches (24”) above all buried portions of the Wastewater Service Line. The tape shall meet the following requirements:

Five (5) mil thick Polyethylene tape

Solid green color with black lettering

Six (6) inches in width

3.6 Tracer Wire

See Appendix E

3.7 Connections, and Requirements for Inspection

3.7.1 Wastewater Service Line Connections

The connection of the Wastewater Service Line to the Wastewater Main shall be made as follows:

A factory wye shall be installed on all new mainline installations for service line stub outs on gravity mains. The wye shall be located no closer than ten (10) feet from a manhole. A saddle tap, provided by the District, shall be used on new service line connections to existing mainlines. All service connections shall be above spring line.

On four-inch (4”) or six inch (6”) diameter new service connections to existing mains, a saddle connection is required. The saddle connection shall be located no closer than ten (10) feet from a manhole. The flow line of the Wastewater Service Line shall enter the main above the spring line of the main. Connections into manholes are prohibited. All connections up to six (6) inches in diameter shall be made by District personnel, and 48 hours prior notice is required to confirm saddle availability, and confirmation of existing Wastewater Main material

If the Wastewater Service Line is eight (8) inches or greater in diameter, the connection shall be made into an existing manhole or into a new manhole placed on the existing main. Connections eight (8) inches or greater in diameter shall be made by a qualified contractor on behalf of the Customer and witnessed and inspected by a District Inspector.

Wastewater Service Line connections are not permitted in areas where the Wastewater Main is less than 4’6” deep.

3.7.2 Wastewater Service Requirements for Inspection

No Services shall be covered with bedding material or backfill without the District Inspector’s approval. All portions of the Wastewater Service Line must be visible to the District Inspector for an inspection to be completed.

3.8 Stub Out or Service Line Abandonment

If a Stub Out or existing service pre-exists on a property and will not be utilized by the Customer, the Stub Out must be abandoned by the Customer.

The Customer shall cut and cap the service at the main. The abandonment shall be inspected by the District prior to backfill. The use of a Stub Out for Connection to the Wastewater Main must be approved by the District.

3.9 Reuse of Existing Wastewater Service Line

The Customer shall provide the District with an inspection video from a licensed contractor of the proposed Wastewater Service Line for reuse to confirm the Wastewater Service Line is an acceptable condition for reuse. Existing service lines with materials that do not meet the current specifications will not be allowed to be reused.

3.10 Repair Couplings

Repair Couplings shall be Sheer Guard, Max Adapter or approved equivalent on a Wastewater Service Line must be compatible with the Wastewater Service Line, installed per the manufacturer's specifications and inspected by District personnel.

3.11 Prohibited Discharges

Floor drains and garage drains shall not be connected to the Wastewater System without written permission from the District. Please refer to Article 6 of the Rules and Regulations.

SECTION 4 - STANDARD SERVICE LINE DETAILS

Form B1: Requirements Checklist for New Service Line Inspection

Failure to meet these requirements may be subject to a Re-inspection fee.

☐ **1**. The trench shall be adequately benched or shored, and the safety of workers provided for as required by the most recent standards adopted by OSHA. The District inspector reserves the right to refuse to inspect if all applicable OSHA standards are not met or if they feel unsafe in any way.

☐ **2.** All pipe material, fittings, and appurtenances shall comply with the material specifications listed in Eagle River Water & Sanitation District Rules & Regulations-Appendix B.

☐ **3.** New taps on existing mains are made by District personnel.

☐ **4**. Taps must be a minimum of 18" apart and at least 18" from the nearest bell and spigot joint.

☐ **5.** Water Service Lines shall be buried a minimum of seven (7) feet and a maximum of nine and a half (9.5) feet below the ground surface. If minimum bury depth cannot be achieved, insulation is required per Appendix B, Section 2.6.1. Cover of less than 7 feet shall only be allowed with written approval from the District prior to construction.

☐ **6**. Wastewater Service Lines shall be buried a minimum of four feet six inches (4' 6") below the ground surface. If minimum bury depth cannot be achieved, insulation is required per Appendix B, Section 3.3.1. Cover of less than 4.5 feet shall only be allowed with written approval from the District prior to construction. A depth of bury greater than fourteen (14) feet requires the approval of the District and may require a change of materials.

☐ **7**. Gravity wastewater service lines shall be installed at a constant grade of not less than one quarter (¼) inch per foot, or 2%, with a minimum of bends and no glue joints outside of the structure served.

☐ **8**. Clean Outs should be installed every 100 feet, at every change of direction equal to or greater than 45 degrees, and a maximum of three (3) feet from the face of the building. Clean Outs are not to be located in ROW.

☐ **9**. The Curb Stop shall be located a maximum of one (1) foot within the property line or edge of easement and shall be easily accessible to District personnel. Refer to curb stop detail B-01 for services less than or equal to 2" and B-02 for services greater than or equal to 4".

☐ **10**. At least ten (10) feet of horizontal separation must be maintained between parallel Water and Wastewater Service Lines. District authorization must be obtained to install Water and Wastewater Service Lines with less than ten (10) feet of horizontal separation. Water and Wastewater Service Lines shall not cross. In cases where it is not practical to maintain a ten-foot (10') separation, refer to Appendix B, Section 2.4.

☐ **11**. The trench shall be excavated so that a minimum clearance of six inches (6") shall be maintained on each side of the pipe for proper placement and compaction of the bedding or backfill material.

☐ **12**. Bedding material shall consist of uniformly graded granular material, 3/8-inch or ¾-inch minus screened rock material, laid six (6) inches below and twelve (12) inches above the service pipe.

☐ **13**. Tracer wire on is required on all water service lines and shall be #12 AWG 0.1019" diameter copper conductor or copper clad steel insulated with a 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation, blue in color, and rated for direct burial use at 30 volts. Service line tracer wire shall be connected to mainline tracer wire using approved splice connectors. If no mainline tracer wire is present, a grounding anode will be installed beneath the tapping saddle. Tracer wire shall be spliced at the curb stop, and an anode, with separate anode lead wire, installed at that location. An at-grade tracer wire access box shall be installed adjacent to the curb box. The service line tracer shall then follow the service line and terminate at a grounding anode adjacent to the structure served.

Tracer wire is required on all wastewater services and shall be #12 AWG 0.1019" diameter copper conductor or copper clad steel insulated with a 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation, green in color,

and rated for direct burial use at 30 volts. Wastewater service line tracer wire shall be connected to mainline tracer wire using approved splice connections. If no mainline tracer wire is present, a grounding anode will be installed beneath the wastewater service line tap location. Tracer wire shall follow the service line (secured with tape) and shall terminate in an at-grade tracer wire access box located adjacent to the cleanout closest to the structure being served. A grounding anode shall be installed beneath the cleanout wye and a separate anode lead wire shall be installed from the anode to the tracer wire access box. *Please refer to Appendix E for all tracer wire requirements.*

☐ **14**. Underground Warning Tape shall be installed twenty-four inches (24”) above all buried portions of services. The tape shall meet the following requirements: Five (5) mil thick Polyethylene tape, solid green (wastewater) or blue in color (water), respectively, with black lettering, six (6) inches in width.

☐ **15**. No Services shall be covered with bedding material or backfill without the District Inspector’s approval. All portions of the Service must be visible to the District Inspector for an inspection to be completed.

☐ **16**. If a Stub Out pre-exists on a property and will not be utilized by the Customer, the Stub Out must be abandoned by the Customer pursuant to Appendix B.

This requirements checklist does not include all specifications related to water and wastewater service connections. A complete description of the requirements for new service connections can be found in the Rules & Regulations available at www.erwsd.org.

Detail B-01: Water Service Stub Out with Mainline Tracer Wire

Detail B-02: Water Service Stub Out without Mainline Tracer Wire

Detail B-03: Service Line Tapping with Mainline Tracer Wire

Detail B-04: Service Line Tapping without Mainline Tracer Wire

Detail B-05: Meter Assembly Diagram

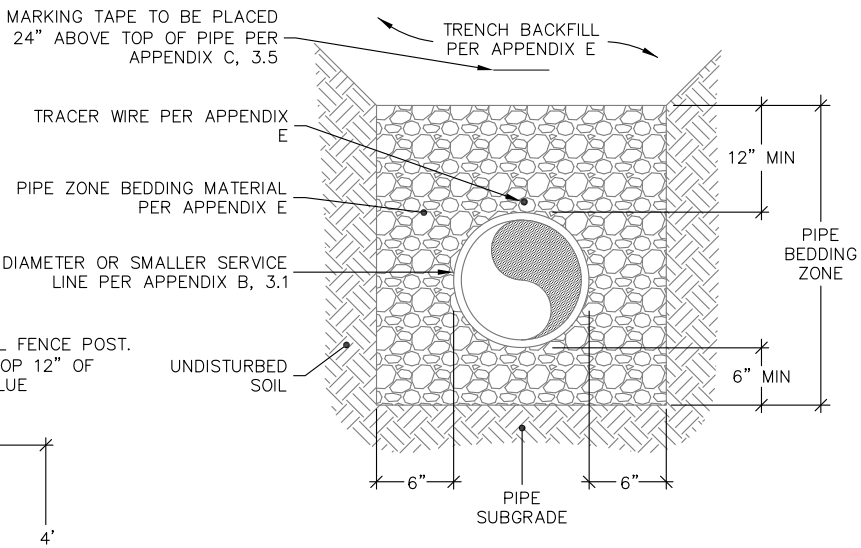
Detail B-06: Service Line Meter Vault

Detail B-07: Service Line Meter Vault – Temporary Construction or Irrigation

Detail B-08: Wastewater Service Line Connection

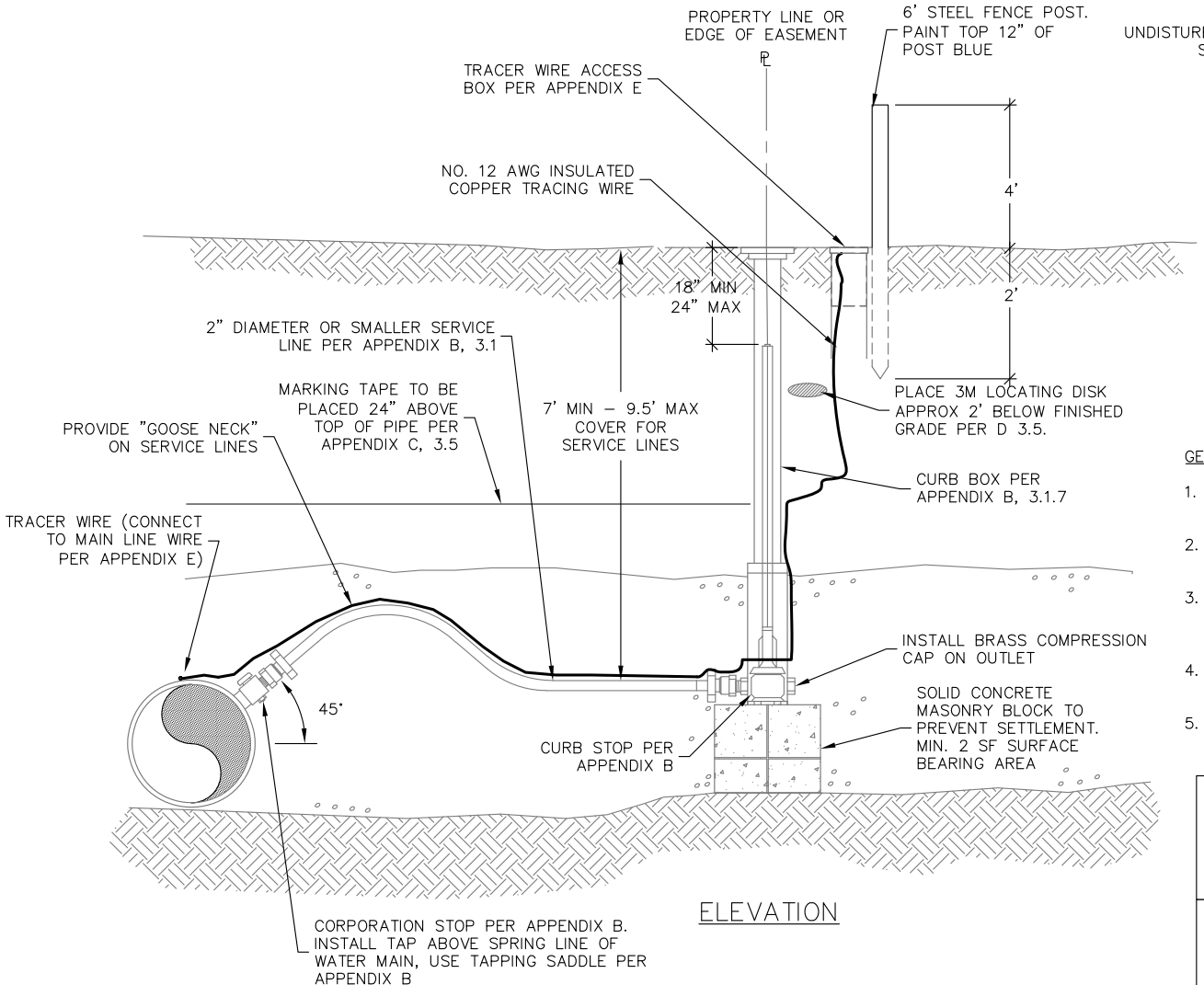
Detail B-09: 2” or Smaller Water Service Line with Mainline Tracer

Detail B-10: 2” or Smaller Water Service Line without Mainline Tracer



ALL BEDDING AND BACKFILL MATERIAL MUST BE COMPACTED TO DISTRICT STANDARDS PER APPENDIX E

SERVICE LINE BEDDING



ELEVATION

GENERAL NOTES

1. CURB STOP TO BE LOCATED AT THE PROPERTY LINE OR AT THE EDGE OF EASEMENT–WHICHEVER IS CLOSER TO THE MAIN.
2. SERVICE LINE CORP. STOP SHALL BE TAPPED ABOVE SPRING LINE OF WATER MAIN.
3. CURB STOP AND RISER ARE TO BE INSTALLED PLUMB AND LEVEL, AND VALVE SHAFT EXTENSION SHALL BE INCLUDED AND CENTERED.
4. VALVE SHAFT SHALL BE EXTENDED TO WITHIN 18"–24" OF FINISH GRADE OR LID OF VALVE BOX WHICHEVER IS HIGHER.
5. REFER TO APPENDIX B FOR APPROVED CURB BOXES.

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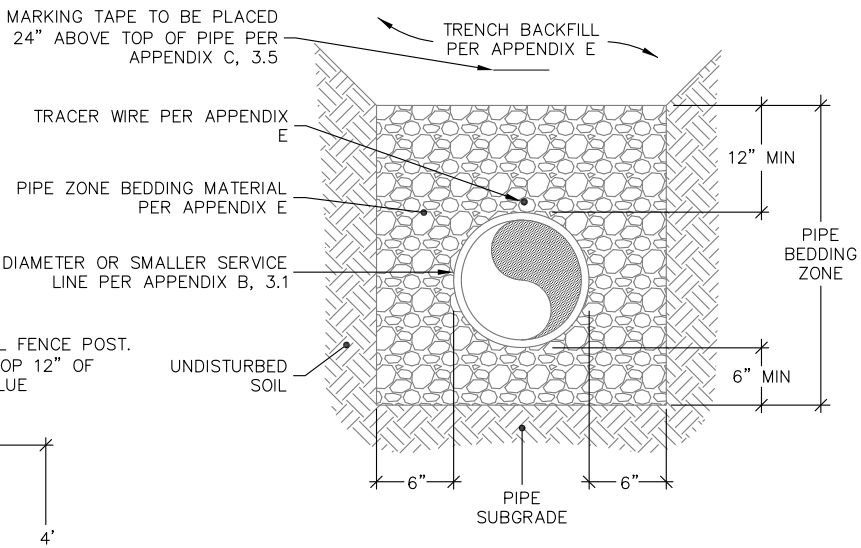
2" OR SMALLER WATER SERVICE STUB OUT (WITH MAINLINE TRACER WIRE)

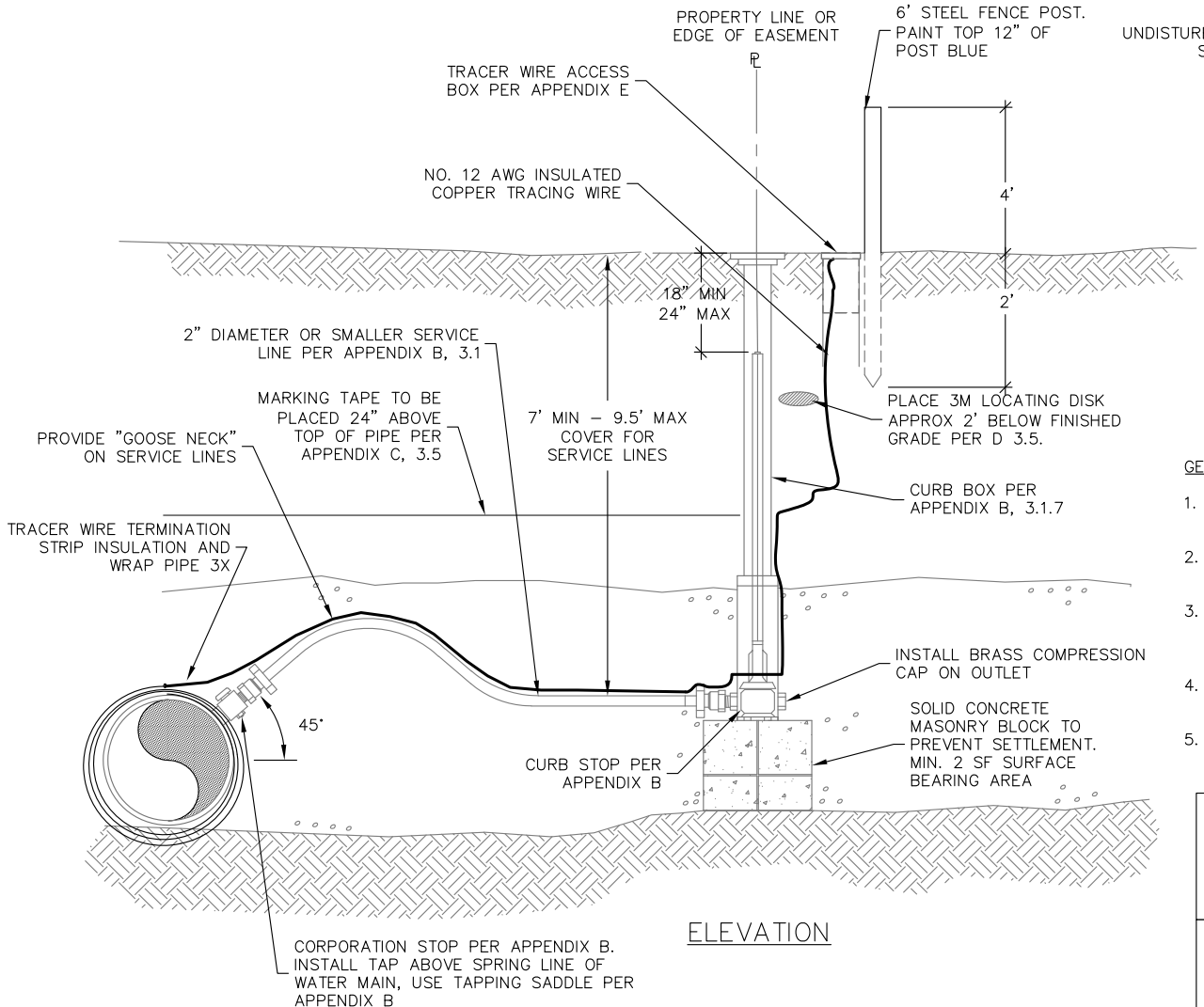
DRAWN BY:	JEC	DATE:	03/01/2017
SCALE:	NONE	REV:	3/31/2023

B–01



ALL BEDDING AND BACKFILL MATERIAL MUST BE COMPACTED TO DISTRICT STANDARDS PER APPENDIX E

SERVICE LINE BEDDING



ELEVATION

GENERAL NOTES

1. CURB STOP TO BE LOCATED AT THE PROPERTY LINE OR AT THE EDGE OF EASEMENT–WHICHEVER IS CLOSER TO THE MAIN.
2. SERVICE LINE CORP. STOP SHALL BE TAPPED ABOVE SPRING LINE OF WATER MAIN.
3. CURB STOP AND RISER ARE TO BE INSTALLED PLUMB AND LEVEL, AND VALVE SHAFT EXTENSION SHALL BE INCLUDED AND CENTERED.
4. VALVE SHAFT SHALL BE EXTENDED TO WITHIN 18"–24" OF FINISH GRADE OR LID OF VALVE BOX WHICHEVER IS HIGHER.
5. REFER TO APPENDIX B FOR APPROVED CURB BOXES.

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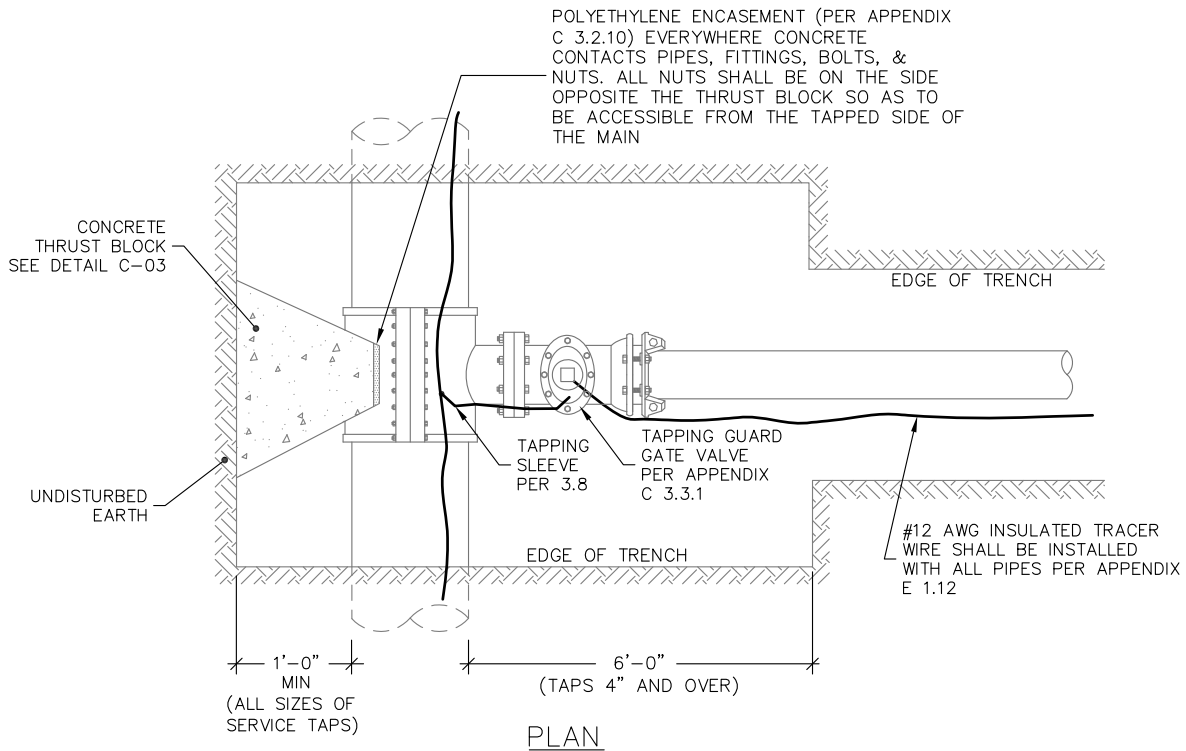
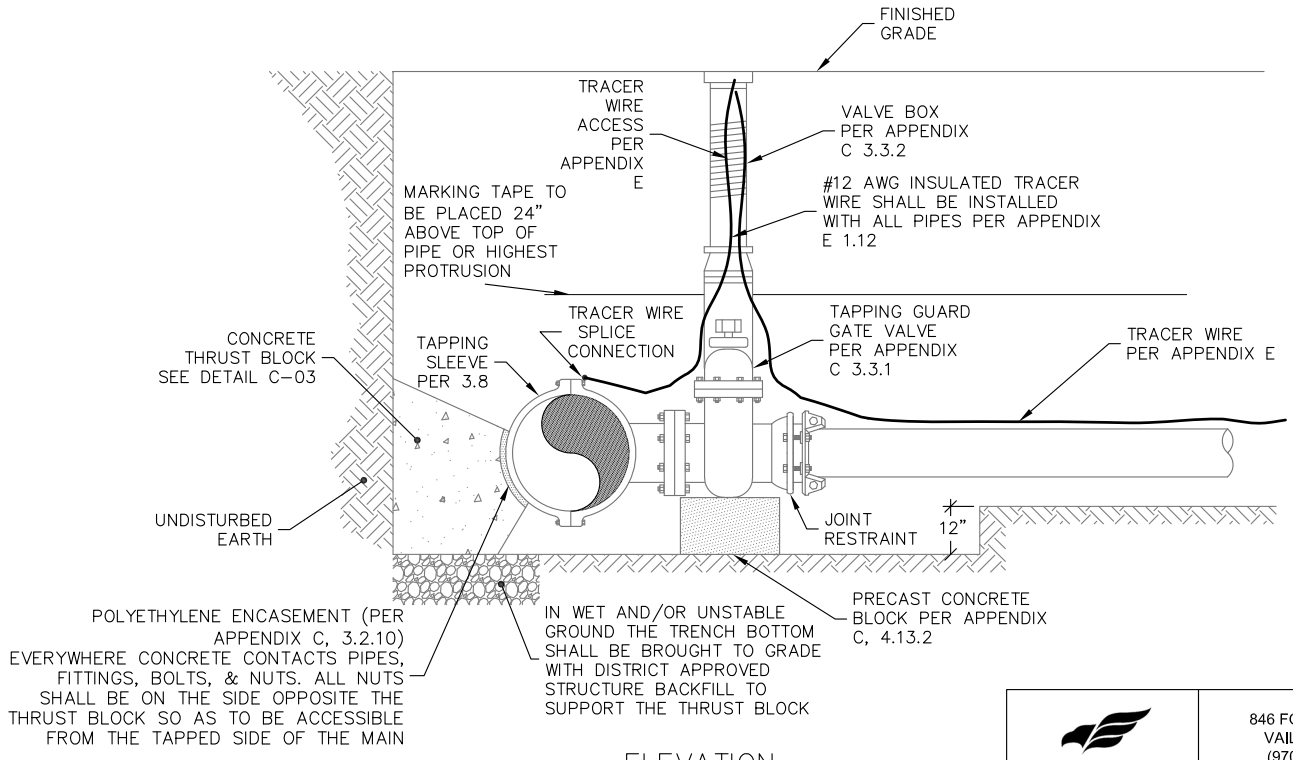
2" OR SMALLER WATER SERVICE STUB OUT (NO MAINLINE TRACER WIRE)

DRAWN BY:	JEC	DATE:	03/01/2017
SCALE:	NONE	REV:	3/31/2023

B–02



PLAN



ELEVATION

GENERAL NOTES

1. TAPPING SLEEVES PERMITTED PER APPENDIX B 3.8
2. PRIOR WRITTEN APPROVAL IS REQUIRED BY THE DISTRICT.

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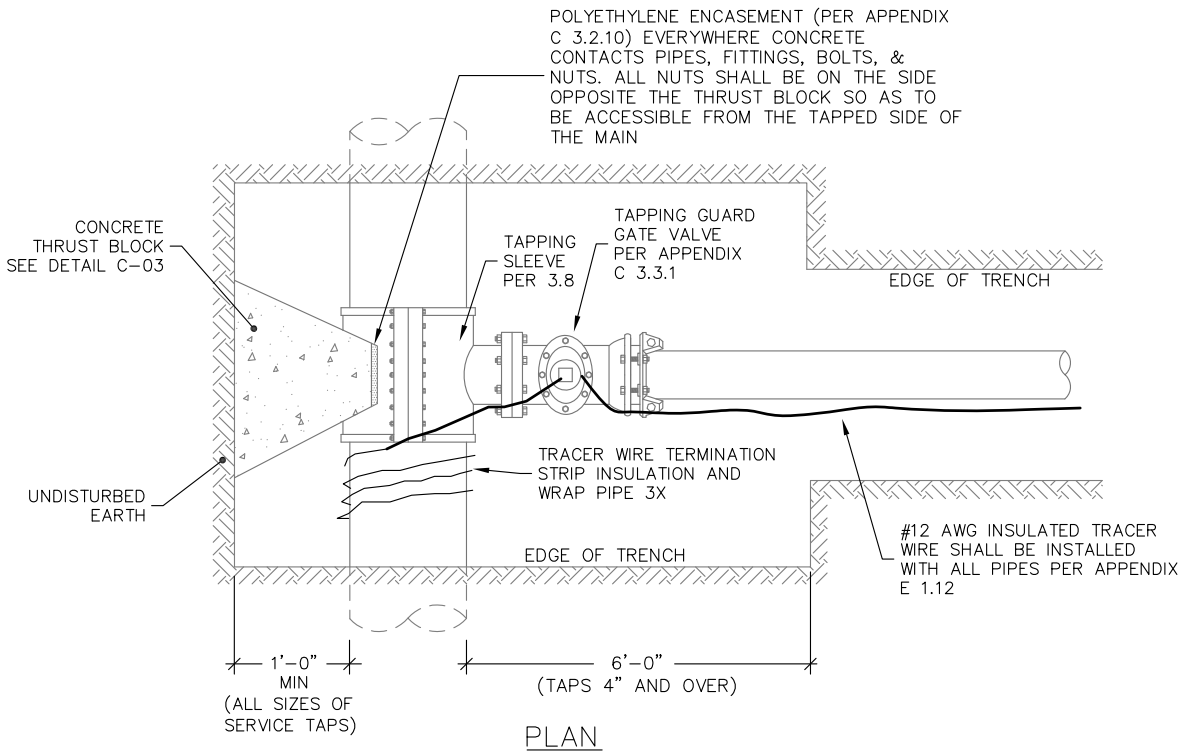
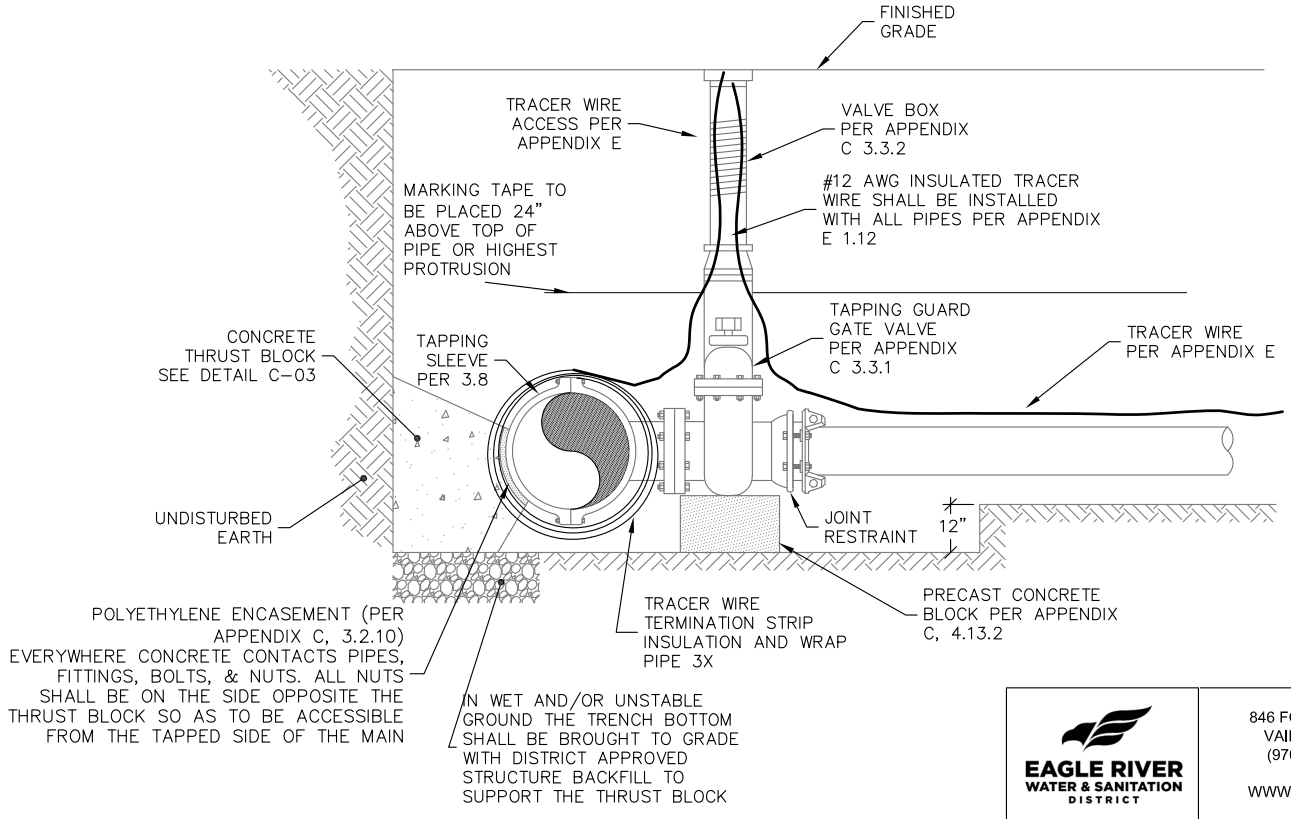
WATER SERVICE TAPPING DETAIL (WITH MAINLINE TRACER)

DRAWN BY:	JEC	DATE:	03/01/2017
SCALE:	NONE	REV:	3/31/2023

B-03



PLAN



ELEVATION

GENERAL NOTES

1. TAPPING SLEEVES PERMITTED PER APPENDIX B 3.8
2. PRIOR WRITTEN APPROVAL IS REQUIRED BY THE DISTRICT.

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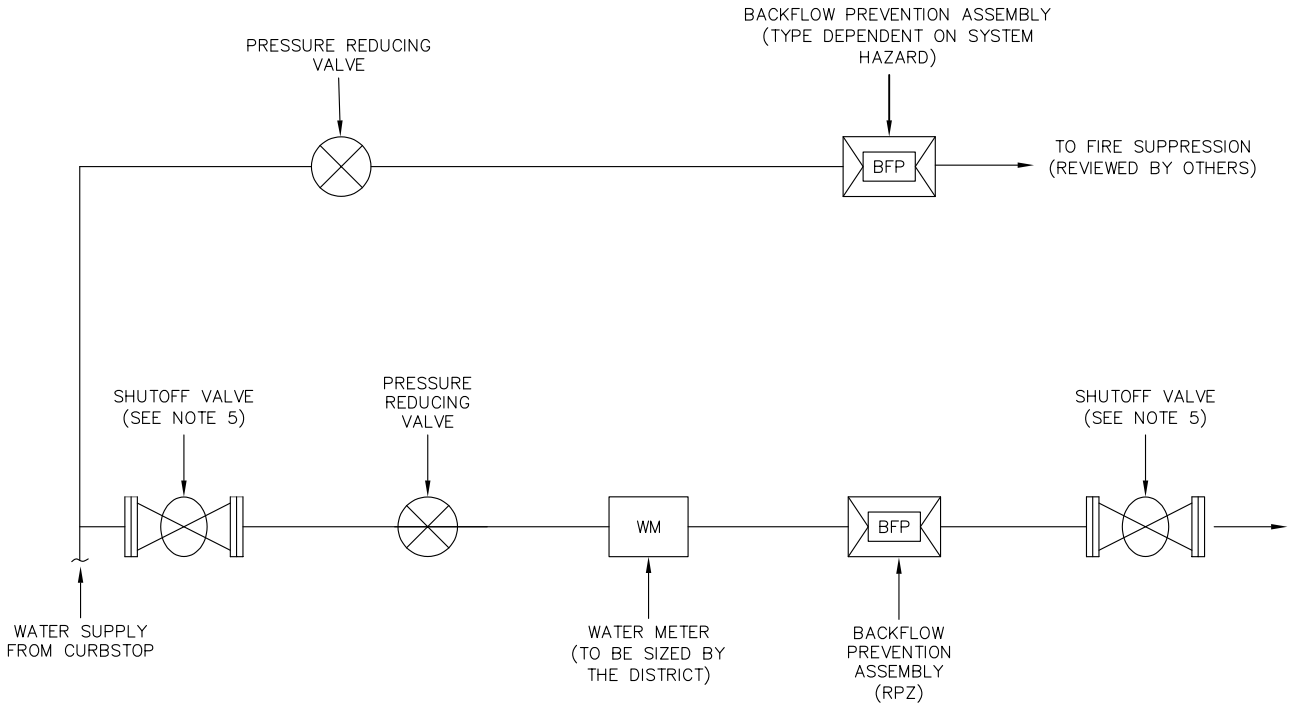
WATER SERVICE TAPPING DETAIL (NO MAINLINE TRACER)

DRAWN BY:	JEC	DATE:	03/01/2017
SCALE:	NONE	REV:	2/5/2020

B-04



APPROVED METER ASSEMBLY DIAGRAM

GENERAL NOTES

1. ALL WATER SERVICE INSTALLATIONS MUST CONFORM TO THE ERWSD CURRENT RULES AND REGULATIONS. THE ABOVE DIAGRAM IS THE CURRENT APPROVED METERING SYSTEM ASSEMBLY.
2. ALL WATER SERVICES SHALL BE CONSTRUCTED OF APPROVED MATERIALS PER APPENDIX B.
3. ALL MATERIALS MUST BE NSF/ANSI 61 AND NSF/ANSI/CAN 372 CERTIFIED INCLUDING ALL MATERIALS PRIOR TO THE BACKFLOW PREVENTION ASSEMBLY ON THE FIRE SUPPRESSION LINE.
4. ALL WATER SERVICE ENTRIES GREATER THAN 2" SHALL BE RESTRAINED TO RESIST APPLICABLE THRUST FORCES. THRUST RESTRAINT SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.
5. SHUTOFF VALVES MUST BE INSTALLED PRIOR TO THE PRV AND AFTER THE BACKFLOW PREVENTION ASSEMBLY ON THE DOMESTIC SERVICE LINE TO FACILITATE FUTURE REPAIRS.
6. SHUTOFF VALVE TYPE: FOR SERVICE LINES SMALLER THAN 3 INCH DIAMETER, BALL OR GATE VALVES ARE PERMITTED. FOR SERVICE LINES 3 INCH DIAMETER AND LARGER, ONLY GATE VALVES WILL BE PERMITTED. NO BUTTERFLY VALVES ARE PERMITTED ON DOMESTIC SERVICE LINES.
7. PRESSURE-REDUCING VALVES (PRV) SHALL BE INSTALLED ON BOTH THE DOMESTIC AND FIRE SUPPRESSION SERVICE LINES TO ENSURE THAT THE WATER METER AND THE BUILDING PLUMBING SYSTEM, INCLUDING ANY FIRE SPRINKLER SYSTEM, ARE PROTECTED FROM FLUCTUATING WATER MAIN PRESSURES. THE PRV ON THE DOMESTIC LINE SHALL BE INSTALLED UPSTREAM OF THE WATER METER. THE PRESSURE SETTING OF THE PRV'S SHALL NOT EXCEED 100 PSI FOR DOMESTIC SYSTEMS AND 200 PSI FOR FIRE SPRINKLER SYSTEMS, WITHOUT WRITTEN PERMISSION FROM THE DISTRICT. PRV'S ARE REQUIRED ON ALL FIRE SUPPRESSION SYSTEMS UNLESS A DISTRICT APPROVED AND RECORDED VARIANCE IS IN PLACE.
8. ALL SERVICES ARE REQUIRED TO HAVE A WATER METER PROVIDED BY THE DISTRICT WITH THREE (3) STRAND 18 GAUGE WIRE RUN TO THE FRONT OUTSIDE OF BUILDING FOR REMOTE READOUT (SUPPLIED BY DISTRICT). METER INSTALLATIONS SHALL BE NO HIGHER THAN THREE (3) FEET ABOVE AND NO LOWER THAN TWELVE (12) INCHES ABOVE THE FLOOR LEVEL IN A HORIZONTAL POSITION. IF THE METER WILL BE LOCATED IN A CRAWL SPACE, THE METER SHALL BE LOCATED WITHIN THREE (3) FEET OF THE ACCESS ENTRY.
9. APPROVED BACKFLOW PREVENTION ASSEMBLIES THAT PROVIDE CONTAINMENT SHALL BE INSTALLED AND TESTED ON ALL NEW SERVICE CONNECTIONS AND SHALL BE LOCATED DOWNSTREAM FROM THE METER PRIOR TO ANY OTHER CONNECTION AND IN A HORIZONTAL POSITION. SINGLE CHECK VALVES ARE NOT CONSIDERED BACKFLOW PREVENTION ASSEMBLIES AND SHALL NOT BE PERMITTED WITHIN THE SERVICE AREA OF THE DISTRICT. NO BACKFLOW ASSEMBLIES SHALL BE INSTALLED DIRECTLY ABOVE THE METER. BACKFLOW PREVENTION ASSEMBLIES WITHIN THE DOMESTIC METER ASSEMBLY SHALL BE REDUCED PRESSURE ZONE ASSEMBLIES (RPZ).
10. NO SERVICE CONNECTIONS OR TIE INS ARE PERMITTED BETWEEN THE METER AND THE DOMESTIC BACKFLOW ASSEMBLY.
11. METER BYPASSES SHALL ONLY BE INSTALLED WHEN DISCONNECTION OF THE WATER SERVICE IS A LIFE SAFETY ISSUE (E.G., SCHOOLS AND HEALTHCARE FACILITIES). THE METER BYPASS SHALL ONLY BE OPERATED BY DISTRICT PERSONNEL.

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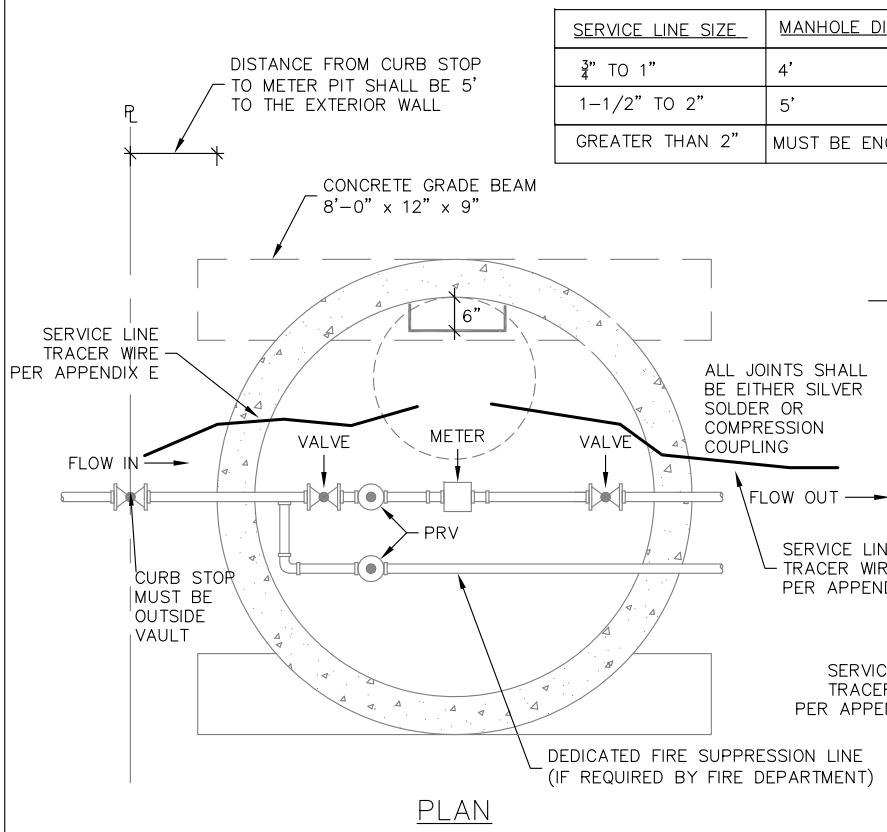
METER ASSEMBLY

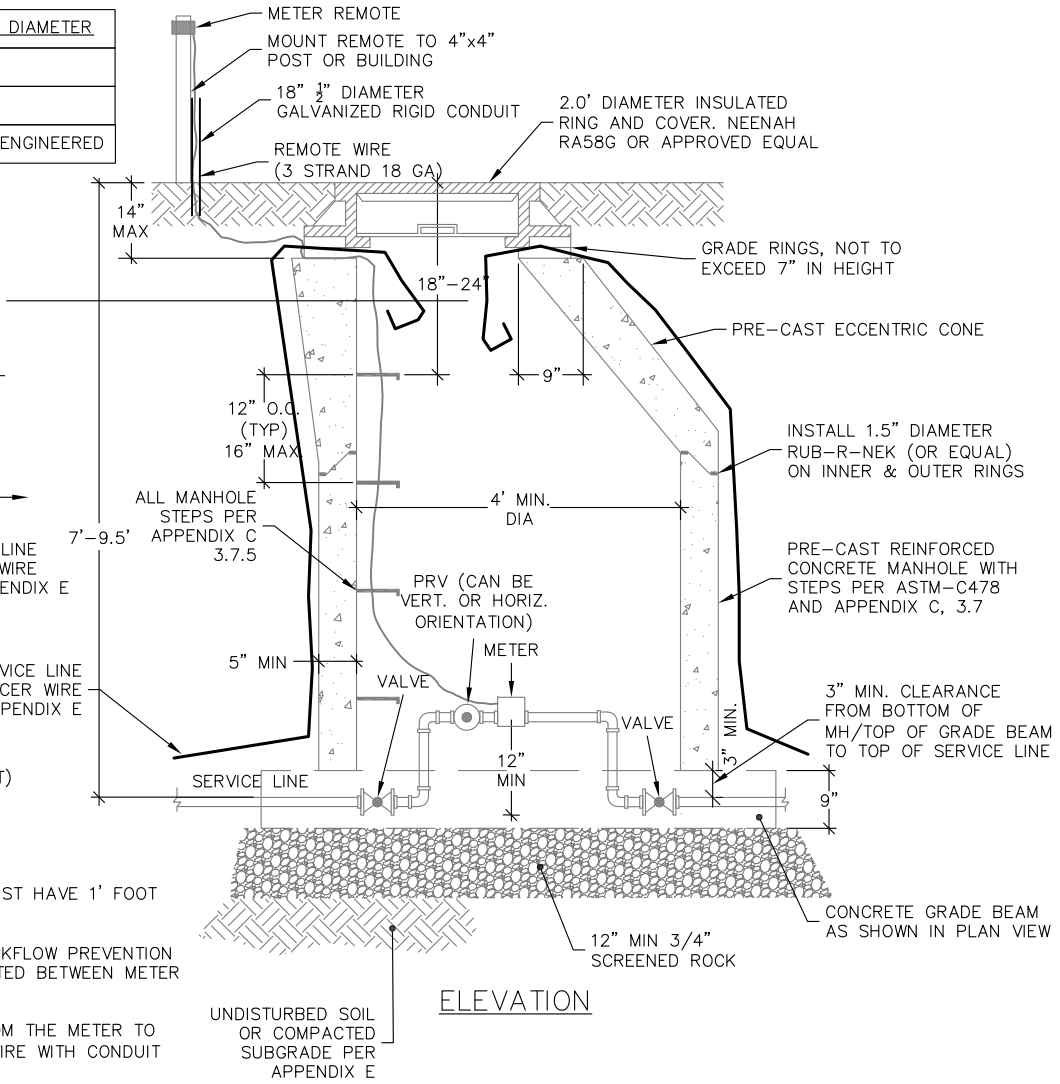
DRAWN BY:	JEC	DATE:	03/01/2017
SCALE:	NONE	REV:	3/01/2025

B-05

SERVICE LINE SIZE	MANHOLE DIAMETER
3/4" TO 1"	4'
1-1/2" TO 2"	5'
GREATER THAN 2"	MUST BE ENGINEERED



PLAN



ELEVATION

GENERAL NOTES

1. THE METER VAULT MUST BE 8' FEET IN DEPTH AND 4' FEET MINIMUM IN WIDTH. IT MUST HAVE 1' FOOT OF 3/4" SCREENED ROCK IN THE BOTTOM OF THE VAULT.
2. ALL COMPONENTS SHALL BE INSTALLED PER DISTRICT STANDARD SPECIFICATIONS. BACKFLOW PREVENTION DEVICE TO BE INSTALLED INSIDE STRUCTURE ABOVE GRADE. NO CONNECTIONS PERMITTED BETWEEN METER AND BACKFLOW DEVICE.
3. THE METER MUST BE MOUNTED HORIZONTALLY. THE REMOTE WIRES MUST BE RUN FROM THE METER TO AN OBJECT OUTSIDE THE VAULT (IE. 4"X4" POST, BUILDING, POLE, ETC.). PROTECT WIRE WITH CONDUIT PER DETAIL.
4. VAULT SHALL BE PRECAST CONCRETE AND CAPABLE OF WITHSTANDING HS 20-44 TRAFFIC LOADING CONDITIONS, IF LOCATION WARRANTS.
5. WHERE PIPES PENETRATE WALLS, USE LINK SEAL OR FILL ANNULAR SPACE WITH NON SHRINK GROUT.
6. CONTRACTOR SHALL SUBMIT VAULT PIPING SCHEMATIC WITH VAULT DIMENSIONS TO DISTRICT PRIOR TO ORDERING MATERIALS OR EQUIPMENT.
7. ALL INSTALLATIONS MUST BE INSPECTED AND APPROVED BY DISTRICT PERSONNEL PRIOR TO BACKFILLING.
8. THIS DETAIL IS APPLICABLE FOR SERVICE LINES SIZES 2" AND UNDER. METER VAULTS FOR 3" AND LARGER SERVICE LINES MUST BE APPROVED BY THE DISTRICT CONSTRUCTION REVIEW TEAM PRIOR TO CONSTRUCTION.
9. MULTI-FAMILY, MIXED USE, AND COMMERCIAL METER ASSEMBLIES GREATER THAN 1.5" REQUIRE THE INSTALLATION OF A BYPASS LINE. REFER TO SHEET B-05.

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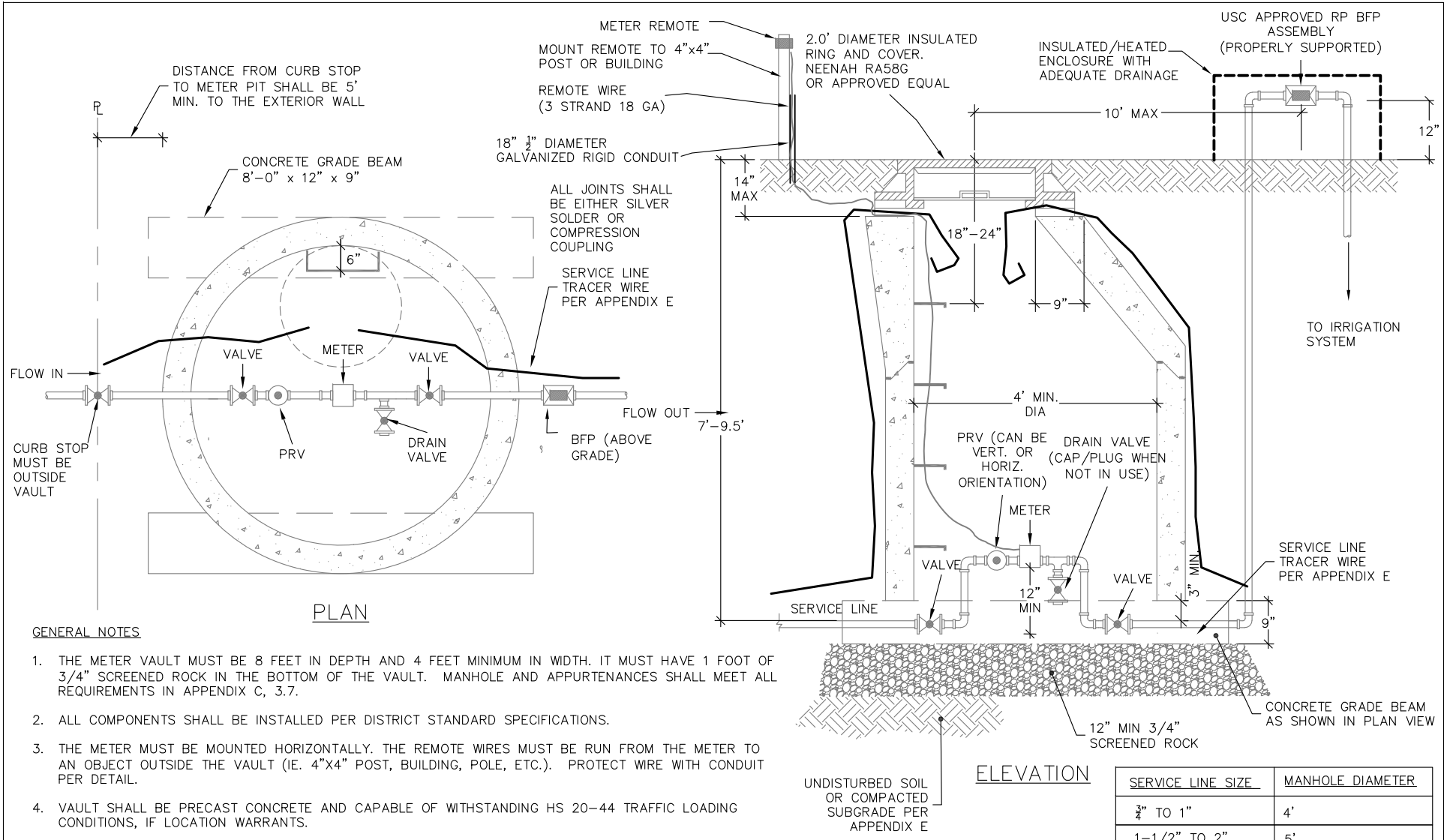
SERVICE LINE METER VAULT

DRAWN BY:	JEC	DATE:	03/01/2017
SCALE:	NONE	REV:	3/31/2023

B-06



GENERAL NOTES

1. THE METER VAULT MUST BE 8 FEET IN DEPTH AND 4 FEET MINIMUM IN WIDTH. IT MUST HAVE 1 FOOT OF 3/4" SCREENED ROCK IN THE BOTTOM OF THE VAULT. MANHOLE AND APPURTENANCES SHALL MEET ALL REQUIREMENTS IN APPENDIX C, 3.7.
2. ALL COMPONENTS SHALL BE INSTALLED PER DISTRICT STANDARD SPECIFICATIONS.
3. THE METER MUST BE MOUNTED HORIZONTALLY. THE REMOTE WIRES MUST BE RUN FROM THE METER TO AN OBJECT OUTSIDE THE VAULT (IE. 4"X4" POST, BUILDING, POLE, ETC.). PROTECT WIRE WITH CONDUIT PER DETAIL.
4. VAULT SHALL BE PRECAST CONCRETE AND CAPABLE OF WITHSTANDING HS 20-44 TRAFFIC LOADING CONDITIONS, IF LOCATION WARRANTS.
5. WHERE PIPES PENETRATE WALLS, USE LINK SEAL OR FILL ANNULAR SPACE WITH NON SHRINK GROUT.
6. CONTRACTOR SHALL SUBMIT VAULT PIPING SCHEMATIC WITH VAULT DIMENSIONS TO DISTRICT PRIOR TO ORDERING MATERIALS OR EQUIPMENT.
7. ALL MATERIAL FROM THE SHUTOFF VALVE UPSTREAM OF THE PRV TO THE BFP ASSEMBLY SHALL BE COMPRISED OF COPPER TUBING PER APPENDIX B FOR SERVICE LINES 2" AND UNDER
8. ALL INSTALLATIONS MUST BE INSPECTED AND APPROVED BY DISTRICT PERSONNEL PRIOR TO BACKFILLING.
9. THIS DETAIL IS APPLICABLE FOR SERVICE LINES SIZES 2" AND UNDER. METER VAULTS FOR 3" AND LARGER SERVICE LINES MUST BE APPROVED BY THE DISTRICT'S CONSTRUCTION REVIEW TEAM PRIOR TO CONSTRUCTION.
10. MULTI-FAMILY, MIXED USE, AND COMMERCIAL METER ASSEMBLIES 3" OR LARGER REQUIRE THE INSTALLATION OF A BYPASS LINE. REFER TO SHEET B-05.

SERVICE LINE SIZE	MANHOLE DIAMETER
3/4" TO 1"	4'
1-1/2" TO 2"	5'
3" OR LARGER	MUST BE ENGINEERED

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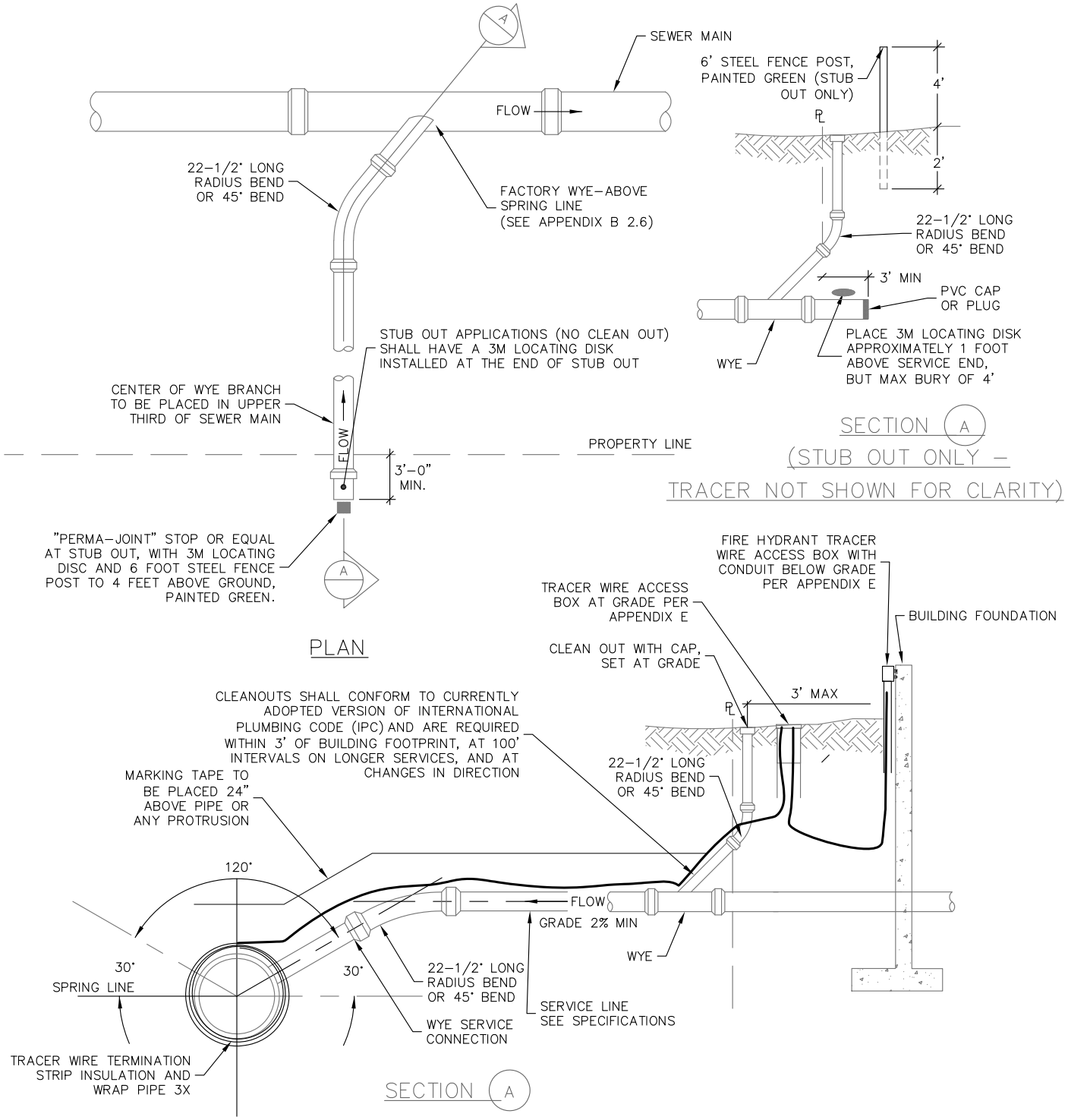
SERVICE LINE METER VAULT (TEMP. CONSTRUCTION OR IRRIGATION)

DRAWN BY:	JRS	DATE:	11/27/2018
SCALE:	NONE	REV:	3/31/2023

B-07



GENERAL NOTES

1. MINIMUM SEPARATION BETWEEN TAPS SHALL BE 18 INCHES.
2. SEWER SERVICE LATERAL CONNECTION SHALL BE 30° TO THE CENTER OF THE SEWER MAIN AND ABOVE SPRING LINE OF THE MAIN.
3. FACTORY WYE SHALL BE INSTALLED FOR SERVICES ON NEW MAINLINE INSTALLATIONS. FOR SERVICE CONNECTIONS TO EXISTING MAINS, TAP TO BE PERFORMED BY DISTRICT USING TAPPING SADDLE FOR SERVICES UP TO 6" IN DIAMETER. SERVICES 8" OR GREATER REQUIRE INSTALLATION OF A MANHOLE.
4. ALL SEWER SERVICE LINES SHALL BE ELECTRONICALLY LOCATABLE WITH A TRACER WIRE SYSTEM AS SPECIFIED IN APPENDIX E.
5. CLEANOUTS AND TRACER WIRE ACCESS BOXES MAY NEED TO BE PROTECTED BY CAST IRON ASSEMBLIES IF LOCATE IN TRAFFIC AREA
6. IF MAINLINE TRACER WIRE IS PRESENT, CONNECT SERVICE LINE WITH APPROVED SPLICE CONNECTION PER APPENDIX E 1.12.

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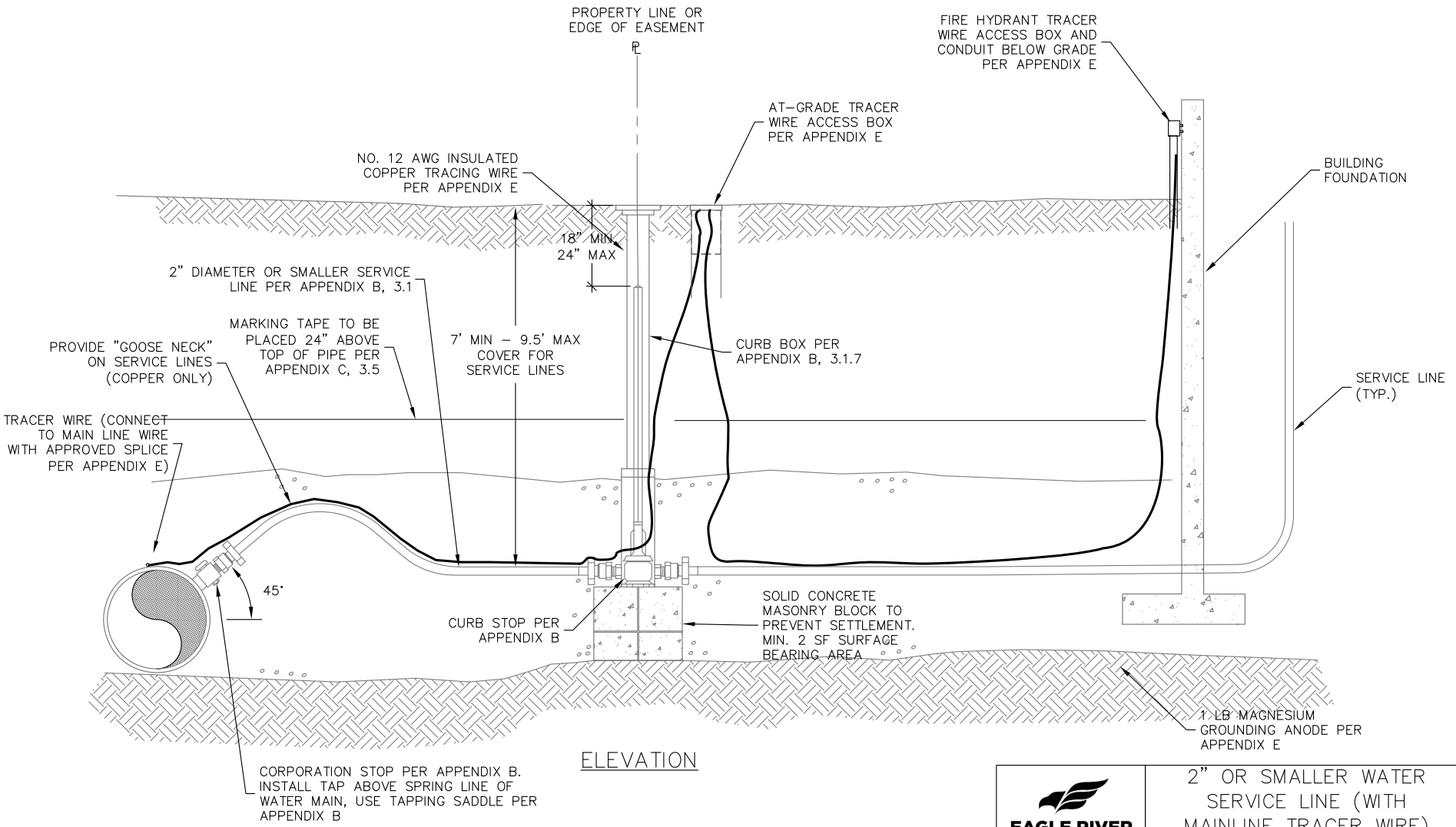
SEWER SERVICE CONNECTION

DRAWN BY:	JEC	DATE:	03/01/2017
SCALE:	NONE	REV:	3/31/2023

B–08



ELEVATION

EAGLE RIVER WATER & SANITATION DISTRICT

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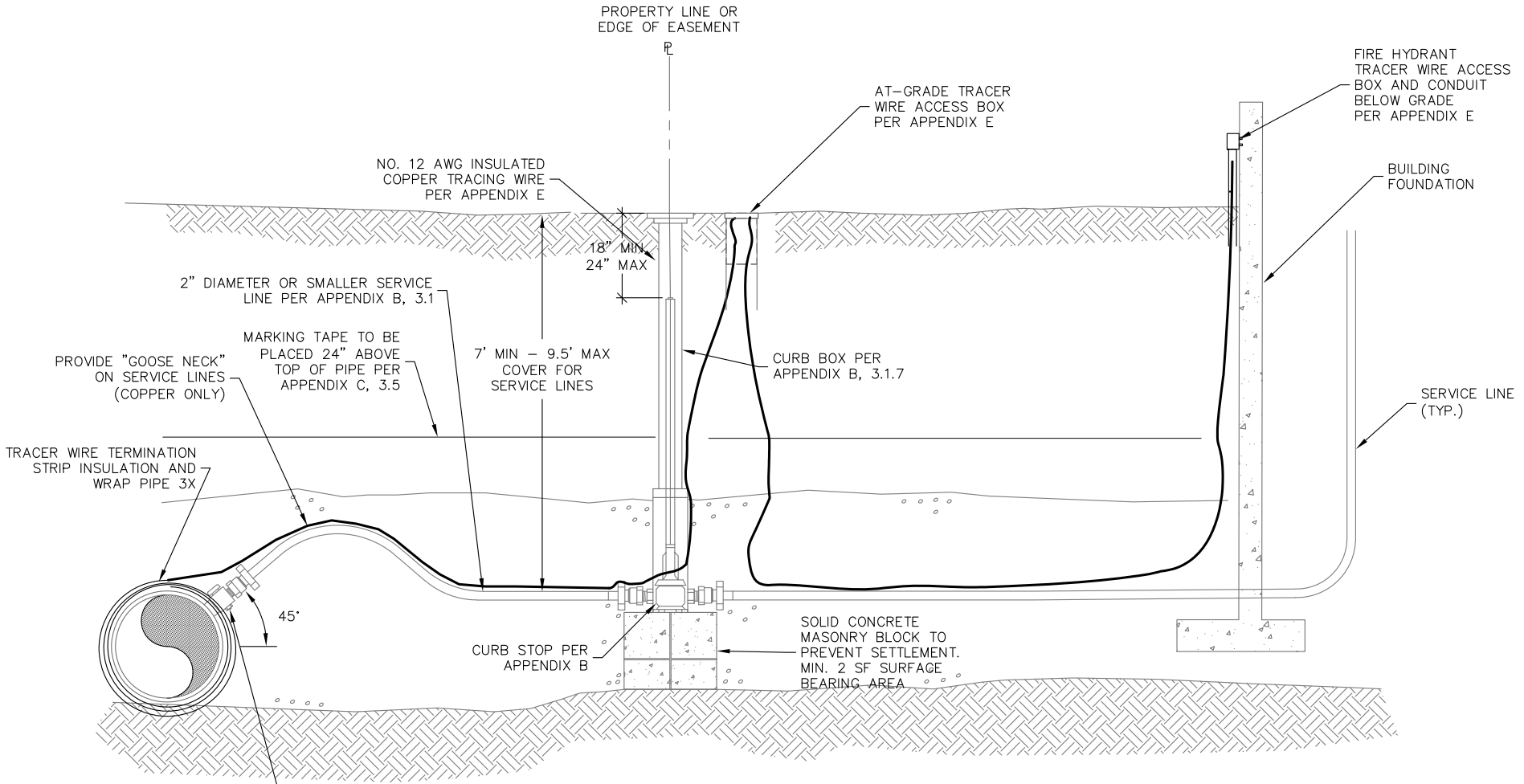
2" OR SMALLER WATER SERVICE LINE (WITH MAINLINE TRACER WIRE)

DRAWN BY:	JEC	DATE:	03/01/2017
SCALE:	NONE	REV:	3/31/2023

B–09



ELEVATION

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2" OR SMALLER WATER SERVICE LINE (NO MAINLINE TRACER WIRE)

DRAWN BY: JEC	DATE: 03/01/2017
SCALE: NONE	REV: 3/31/2023

B–10