

Peoples Water Service Company

of Florida, Inc.

**Florida Public Service Commission
Certificate Number 543-W**

MINIMUM CONSTRUCTION REQUIREMENTS

AND SPECIFICATIONS

FOR PROJECTS AND MAIN EXTENSIONS

FOR WATER FACILITIES

Revised 2016

TABLE OF CONTENTS

<u>SECTION DESCRIPTION</u>	<u>SECTION</u>
APPLICABLE DEFINITIONS	D.01 to D.25
GENERAL REQUIREMENTS	G.01 to G.18
EXECUTION	E.01 to E.04
QUALITY ASSURANCE	Q.01 to Q.04
ACCEPTABLE MATERIALS AND PRODUCTS	M.01 to M.11
INSTALLATION	I.01 to I.18
ACCEPTANCE	A.01 to A.07

This document is to serve as a guideline for all building projects and main extensions. Peoples Water Service Company of Florida, Inc. (here-in-after Peoples) reserves the right to inspect and specify any and all aspects of projects and main extensions. Peoples will make reasonable effort to inform the owner/developer of any other requirements or specifications. Ultimately, Peoples has the final decision on any issue relating to the water system.

APPLICABLE DEFINITIONS

D.01 ANSI - American National Standards Institute.

D.02 ASTM - American Society for Testing Materials specifications as per latest edition.

D.03 AWWA - American Water Works Association.

D.04 CI - cast iron.

D.05 County - the Escambia County Board of County Commissioners and legally formed Departments and more particularly the Division of Public Works and Division of Growth Management.

D.06 CTS - copper tubing size and refers to the outside diameter dimension of polyethylene tubing.

D.07 Developer/owner - that person or legal entity that has title interest in the property to be developed, or who has an assignment from the legal property owner to develop said property.

D.08 DI - ductile iron.

D.09 Easement - land dedicated to public use and recorded by proper legal instrument in the Official Records of the County, and shall be for installation of and access to utilities and other infrastructure, but not for roads; and, must be a minimum of fifteen feet wide.

D.10 ECUA - Emerald Coast Utilities Authority.

D.11 EOP - edge of pavement.

D.12 FDEP - Florida Department of Environmental Protection.

D.13 FDH - Florida Department of Health.

D.14 FIPT - female iron pipe thread.

D.15 FPSC - Florida Public Service Commission.

D.16 Health Unit - The Escambia County Public Health Unit as a local agency for the Florida Department of Health.

D.17 MIPT - male iron pipe thread.

D.18 NPS - nominal pipe size. For water pipe this normally applies to the inside diameter measured in inches.

D.19 Peoples - Peoples Water Service Company of Florida, Inc., offices located at 905 Lownde Avenue, Pensacola, 32507-3023.

D.20 Push-on joint - same as gasketed bell and spigot; and, push-up, bump-on, slip gasket, and other slang descriptions.

D.21 ROW - right-of-way and is the land dedicated to public and recorded by proper legal instrument in the Official Records of the County and shall be for installation of roads, storm drains, and utilities.

D.22 Service line - the pipe or tubing that extends from the main to a customer's property line for providing water service to a residential, business, commercial, industrial, or public building or other use on the property.

D.23 Service stops - the valve that is installed at the customer end of the service line and is also referred to as a service valve, curb stop, and meter valve.

D.24 SFDRU - single family detached residential unit.

D.25 WDS - water distribution system and it includes all mains, service lines, valves, fittings, hydrants, and other appurtenances.

GENERAL REQUIREMENTS

G.01 DEVELOPER AGREEMENT. A legal instrument, a Developers Agreement, must be executed between the Developer/Owner and Peoples once the project has been approved by the County. It shall then be recorded in the Official Records of Escambia County and become part of the title documents of the developed properties. An uncompleted copy of Peoples' standard Developers Agreement is included with these specifications. Peoples will inform Developer/Owner of project specific conditions and terms as soon as possible.

G.02 PLANS AND SPECIFICATIONS. Prior to the start of installation of water facilities, three sets of engineering or

architectural plans must be delivered to Peoples and approved for construction by Peoples. These plans must show the proposed: water facilities, sewer facilities, storm drainage facilities, natural gas facilities (if applicable), underground electrical utilities (if applicable), underground telephone utilities (if applicable), dedicated right-of-ways, road pavements, special dedicated utilities easements, subdivided property lines, and special details as may be required. A legal description must be included on the drawings, complete with section, township, and range lines and labeling, and all survey markings must be included for the boundaries of the project. Three sets of the engineer's specifications incorporating these specifications for the water facilities construction are to be delivered to Peoples.

The engineer's specifications are to be those that are to be part of the water facilities construction contract, or that will be used by the developer/owner employees to install the water facilities. These plans and specifications must be signed and sealed by a professional engineer or architect, or a registered land surveyor, as is applicable to the specific plans and specifications.

G.03 COST ESTIMATE. A cost estimate for the installation of the water facilities must be provided by the developer/owner.

G.04 REVIEW INSPECTION FEES. A review fee must be paid by the developer. With the submittal of the water facilities plans and specifications to Peoples, a Concurrency/Plan Review fee of \$175 must be paid to Peoples. Future billing by Peoples will be done no more often than monthly. At the end of the project, Peoples' actual expenses for inspection will be submitted to developer/owner for payment. Expenses included are: payroll expenses including labor burden, materials plus up to 10% of the invoiced materials for handling, equipment per standard Peoples capitalization charges, and any outside services' direct costs plus up to 10% of the invoiced services charge for handling. The fees will include facilities installation inspection, water used for flushing new mains, final approval and acceptance of facilities, administrative expenses, et cetera, as applicable. Said inspection fee must be paid in full before Peoples will issue a final acceptance letter.

G.05 FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVAL. A completed FDEP Notice of Intent to Use the General Permit for Construction of Water Main Extensions must be signed by a professional engineer and submitted with the plans and specifications described above.

G.06 CONNECTION OF NEW MAINS TO PEOPLES' EXISTING MAINS. Valves connecting new mains to Peoples' mains must remain closed except for flushing, pressure testing and disinfection activities as

approved by Peoples. Upon completion of the installation of the water distribution facilities but prior to the issuance of the final letter of acceptance and the rendering of service, the following documents will be required as specified in the Developer Agreement: As Built Plans, Bill of Sale, Construction Invoices, Release of Lien for Construction Invoices, Maintenance Bond, Release of Lien from Developer, Right-of-Way Conveyance and the FDEP Letter of Clearance.

G.07 IMPACT FEES. Impact fees as provided in Peoples' FPSC approved Tariff will be assessed based on the number of metered services for the project and the meters' respective pipe diameter sizes. These fees must be paid at the time the developer/owner makes an application for the meters to be set at each location.

G.08 APPLICATIONS FOR METERS. These must be signed by the developer/owner or their authorized representative and each meter to be installed must have a separate application. These may be sent in to the office with a cover letter written on the developer/owner's letterhead; or done in person in Peoples' office. Applications must include payment for the meter installation and a standard service deposit. Any jumpers found in meter boxes or meters installed by anyone other than a Peoples employee will be treated as unauthorized tampering, and a \$50 fine will be charged, plus service charges and water usage estimates; payable by the developer/owner. Peoples reserves the right to pursue criminal charges for meter tampering.

G.09 INDIVIDUAL WATER METERS will be required for each SFDRU and each individual place of business.

G.10 APPLICATIONS FOR DEDICATED FIRE LINES. These shall be handled on the same basis as Applications for Meters. Monthly service charges are listed in Peoples' most current FPSC approved Tariff. All costs and expenses of installation are the sole responsibility of the developer/owner. If part of the total project, the developer/owner may make the service tap, but it must be inspected by a Peoples representative. There is no impact fee for dedicated fire lines.

G.11 RIGHT-OF-WAYS AND EASEMENTS. All ROWs and easements must be dedicated to the public and recorded in the Official Records of the County.

G.12 CROSS CONNECTION CONTROL. The requirement of the installation of backflow prevention devices for any service will be at the discretion of Peoples.

G.13 OTHER REQUIREMENTS. Other requirement and/or specifications may be required by Peoples that are not here-in specified depending on site-specific conditions and requirements.

In all cases Federal (generally USEPA), State (generally FDEP and FPSC), Local (generally County), AWWA, ASTM, and ANSI standards will be followed.

G.14 LIABILITY. The owner/developer is liable for any damages to Peoples facilities by developer/owner or his contractors.

G.15 AMENDMENTS. These requirements and specifications may be amended by Peoples at any time per Peoples' sole discretion.

G.16 OFF-SITE CONNECTIONS OF NEW ON-SITE WDS TO PEOPLES EXISTING WDS. Chapter §25-30.250(1), Florida Administrative Code, states: "Each utility shall make all reasonable efforts to provide continuous service."; Specific Authority: Chapter §367.121, Florida Statutes. In order to best accomplish this, all new subdivisions, multiple family apartment developments, commercial developments, industrial developments, or similar type development projects that require a spread-out On-Site WDS shall be connected off-site to existing Peoples water mains in at least two separate locations, to be determined by Peoples. These Off-Site connections, including any Off-Site piping required to make them, shall be installed at the sole cost and expense of the Owner/Developer. (Rev. 070397)

G.17 ON-SITE WDS SERVICE RELIABILITY REQUIREMENTS. Based on the same Law and Rule as listed in G.16 above, it is required that the On-Site WDS be designed with a sufficient number of valves so that the minimum number of service connections are left out of water service due to a water main or service line break in any part of the On-Site WDS. A sufficient number of valves means the number and locations as approved by Peoples.

G.18 CONSTRUCTION WATER METERS. All construction water meters shall be set or provided by Peoples.

EXECUTION

E.01 EXECUTION OF DOCUMENTS. All legal documents must be executed, all administrative, engineering, accounting and other necessary documents must be provided and signed or executed as required.

E.02 PAYMENTS TO PEOPLES. All payments as required by the executed Developers Agreement must be paid to Peoples by developer/owner.

E.03 DEVELOPER/OWNER'S SOLE COST. All water facilities must be installed in accordance with Peoples' specifications. This

will be done at the sole cost and expense of the developer/owner.

E.04 SHOP DRAWING REQUIREMENT. All brands, types, and models of pipes, fittings, valves, saddles, hydrants and other water system appurtenances must be submitted as shop drawings to Peoples and approved in writing by Peoples prior to installation.

QUALITY ASSURANCE

Q.01 PRODUCT QUALITY: All materials must be new and meet Peoples specifications as evidenced by invoice if requested by Peoples. Peoples reserves the right to reject material left from another job, or any physically damaged.

Q.02 ANSI/AWWA STANDARDS. Materials of construction and installations must comply with the latest edition of ANSI/AWWA Standards; as may be amended in these specifications. Those most applicable are the following.

Q.02A Standard C104: Cement Mortar Lining for Cast Iron Pipe and Fittings.

Q.02B Standard C110 & C110a: Gray Iron and Ductile Iron Fittings, 2-inch through 48-inch for Water and Other Liquids.

Q.02C Standard C111: Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings.

Q.02D Standard C150: Thickness Design of Ductile Iron Pipe.

Q.02E Standard C151: Ductile Iron Pipe, Centrifugally Cast in Metal Mold or Sand Lined Molds, for Water or Other Liquids.

Q.02F Standard C153: Ductile Iron Compact Fittings, 3-inch through 12-inch for Water and Other Liquids.

Q.02G Standard C502: Fire Hydrants.

Q.02H Standard C509: Gate Valves.

Q.02I Standard C550: Protective Epoxy Interior Coatings for Valves and Hydrants.

Q.02J Standard C600: Installation of Ductile Iron Water Main and Appurtenances.

Q.02K Standard C605: Underground Installation of

Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.

Q.02L Standard 651: Disinfecting Water Mains

Q.02M Standard C800: Underground Service Line Valves and Fittings.

Q.02N Standard C900: Polyvinyl Chloride (PVC) Pressure Pipe 4-inch through 12-inch for Water Distribution.

Q.02O Standard C901: Polyethylene (PE) Pressure Pipe, Tubing, and Fittings, 1/2-inch through 3-inch for Water.

Q.02P ANSI B1.20.1: Dimensions and tolerance for tapered pipe threads for threaded fittings.

Q.02Q ANSI B16.5: Standards for bolt holes, bolt circle, and overall dimensions for steel 150# flanges.

Q.03 ASTM STANDARDS. Materials of construction and testing must also comply with the latest published editions of the ASTM Standards. Those most applicable are those listed following.

Q.03A Standard D-1784: Compounds used in the manufacture of plastic pipe, valves and fittings.

Q.03B Standard D-1785: Specification and quality of Schedule 40, 80, and 120 PVC pressure pipe.

Q.03C Standard D-2464: PVC Schedule 80 threaded pipe fittings.

Q.03D Standard D-2466: Schedule 40 PVC threaded and socket pressure fittings.

Q.03E Standard D-2564: Requirements for PVC Solvent Cement.

Q.03F Standard F-656: Requirements for primers to be used for PVC cemented joints of pipes and fittings.

Q.03G Standard D-2855: Procedure for making joints with PVC pipe and fittings by means of solvent cementing.

Q.04 National Sanitation Foundation. NSF Standard 14: Specifications for toxicological and organoleptic levels to determine suitability of plastic piping for potable water use.

MATERIALS AND PRODUCTS ACCEPTABLE

M.01 GENERAL MATERIAL AND PRODUCTS REQUIREMENTS:

M.01A PREFERRED PIPE. Preferred pipe for transmission and distribution mains is PVC, except ductile iron will be required for bridge crossings, aerial non-bridge crossings, and underwater crossings of any navigable waters. Underwater crossings of non-navigable waters shall be PVC of special wall thickness and special locking joint design. All PVC pipe 4-inch and larger must be blue in color, pigmented as an integral part of the resin. PVC pipe 1&1/2-inch to 3-inch may be white, but not gray in color, pigmented as an integral part of the resin.

M.01B EXCLUDED PIPE AND TUBING. No gray cast iron, asbestos cement, galvanized or black steel, wrought iron, fiberglass, copper, lead, polypropylene or polybutylene pipe or tubing will be used in the water distribution system installed by the developer/owner, unless specifically approved in writing by Peoples prior to its installation; however, approval is very unlikely, and in no case will lead, copper, or polybutylene be approved for either mains or service lines.

M.01C MARKINGS. All pipe shall have marked on its barrel in a continuously lettered line in a permanent type ink or paint its: Nominal Pipe Size; Material Code Designation; Standard Dimension Ratio; Pressure Rating; Manufacturer's Name or Trademark; National Sanitation Foundation Seal; and the Appropriate ASTM Designation Number. The pipe shall be laid in the pipe trench so that this marking is facing upward on top of the pipe.

M.01D UNDER ROAD CASING. Peoples reserves the right to require that water mains crossing main county roads and state roads be cased with PVC or steel road crossing pipe. Service lines shall be cased under all roads and other pavements in ROWs or easements. Casings shall be of a size large enough so there is ample clearance for the water pipe joints of the encased pipe to slide freely through the casing.

M.02 POLYVINYL CHLORIDE PIPE (PVC):

M.02A Pipe that is 2-inch or 3-inch nominal pipe size shall be ASTM D2241 Standard, Type 1, Grade 1, Specification 1120, SDR/DR 21, Pressure Class 200 PSI, iron pipe size outside diameter.

M.02B Pipe that is 4-inch through 16-inch nominal pipe size shall be AWWA C-900 Standard, Specification 1120, SDR/DR 25, Pressure Class 160.

M.02C Unless otherwise approved, all pipe larger than 4-inch shall be push-on gasketed bell and spigot joints with the bell integrally cast into pipe. Two-inch and 3-inch PVC may use PVC glued joint couplings utilizing the proper wet/dry glue and glue joint cleaning solvent.

M.02D All joints for pipe 4-inch and larger are to use elastomeric gaskets, as provided in AWWA C900 or ASTM D3139 Standards.

M.03 DUCTILE IRON PIPE (DIP):

M.03A Pipe must comply with AWWA Standards C104, C111, C150 and C151, except as otherwise approved by Peoples.

M.03B DIP 3-inch through 24-inch NPS shall be AWWA Standard C151 wall thickness Class 51, minimum.

M.03C Must be cement mortar lined pipe complying with AWWA Standard C104, and must be coated with bitumastic or epoxy bitumastic standard coating for all pipe and fittings.

M.03D Pipe joints must be mechanical or push-on type for all buried pipe, in accordance with AWWA Standard C111. Some applications may require only mechanical type joints, and some mechanical joints may require mechanical joint restrained glands.

M.04 PIPE FITTINGS.

M.04A All fittings for pipe sizes 4-inch and larger, such as elbows, tees, wyes, reducers, offsets, caps, plugs, sleeve couplings, et cetera, shall be ductile iron and must comply with AWWA Standards C110, C110a, C111, and/or C153. Two-inch and 3-inch pipe sizes may use PVC primed and solvent cement welded joint fittings, as approved by Peoples.

M.04B All fittings must be of a pressure class equal to or greater than that specified for pipe.

M.04C Must be cement mortar lined complying with AWWA Standard C104, and must be coated with an epoxy bitumastic standard coating for all pipe and fittings.

M.04D Ductile or cast iron fittings may require push-on, mechanical, or flanged, or a combination of two of these types, depending on specific circumstances. Mechanical and flanged combinations would normally be required at tees where valves are installed.

M.05 MAIN VALVES

M.05A Gate Valves shall be manufactured according to the AWWA Standards C509, C550, and C111, cast iron body, inside epoxy coated (minimum), compression resilient seated valves. Brands that are acceptable are Mueller, M&H Valve, Clow, American, and Kennedy.

M.05B Valve stems shall open the valve by turning it counterclockwise. Stems shall be non-rising and be outfitted with a 2" cast/ductile iron square operating nut.

M.05C Valve joints. Both joints shall be mechanical type joints in the case of inline valves, or one mechanical and one full-face flanged type in the case of valves installed at tees. Flanges shall be joined using full-face rubber gaskets. Mechanical joint glands on DIP must be restrained type.

M.05D No butterfly type valves are acceptable in sizes up to 16-inch NPS. Over this NPS, they may be approved depending on circumstances.

M.05E No plug or ball valves are acceptable as water main valves in any size.

M.05F All buried valves shall have a CI or DI valve box installed over that is a screw type casting for vertical adjustment. The CI/DI valve box cover must have cast in lettering spelling "WATER". The top of the box, if not installed in a pavement, must be surrounded by a concrete collar eighteen inches in diameter and 5 $\frac{1}{2}$ inches deep, with a Size/Number 2 concrete reinforcing bar ring inserted when the concrete is poured. Boxes must be traffic or non-traffic design as appropriate.

M.06 FLUSHING HYDRANTS.

M.06A Flushing hydrants are for the primary purpose of flushing dead-end mains and will be installed in cul-de-sacs, dead-end streets, temporary ends to mains and other main dead-ends. Flushing hydrants must comply with AWWA Standard C502, and must be dry barrel type.

M.06B Flush with the ground flushing hydrants must be M&H Valve Co. Flush Model Style No. 333, with a 2 $\frac{1}{4}$ -inch main valve opening; or Peoples approved equal.

M.06C Above ground flushing hydrants must be M&H Valve

Co. Post Type Style No. 233, with a 2&1/4-inch main valve opening; or an Peoples approved equal. These must be installed with a buried AWWA spec all brass gate type valve in the water main at least three feet before connection to the hydrant.

M.06D Flushing hydrants are to be fitted with one (only) 2&1/2-inch NPS male national standard threaded hose nozzle outlet, with female threaded standard fire hydrant cap and security chain; and a 2-inch or 3-inch NPS FIPT inlet.

M.07 FIRE HYDRANTS.

M.07A Fire hydrants are those installed for the primary purpose of fighting fires and not for main flushing. Fire hydrants shall not be installed on water mains less than 6-inch NPS.

M.07B Fire hydrants must comply in all respects with AWWA Standard C-502, and be of the break-flange/lug traffic type where the main valve remains closed should the hydrant section be broken off; and, must be of the dry barrel design.

M.07C Only Mueller Style A-423 Centurian, M&H Valve Style 129 Reliant, or American Darling Style B84B, with a 5&1/4-inch main valve, two 2&1/2-inch hose nozzles, and one 4 & 1/2-inch pump nozzle, fire hydrants are acceptable. The hydrant's main valve must open counter-clockwise; and, the bonnet shall be so marked.

M.07D Fire hydrant bury depth from grade shall be a minimum of 36-inches to the top of the fire main, and the above ground height shall set the break-away flange six inches above finish grade; however, in all cases the centerline of the lowest nozzle shall be 18 inches or more above finish grade.

M.07E Each fire hydrant must be installed with a buried isolation valve in the fire main that is flange bolted to the transmission/distribution system main tee.

M.07F All fire hydrants are to be thrust blocked only with concrete against the shoe with no rod ties to the isolation valve or fire main because a non-break-away impact may occur which could cause a dislocation of buried pipe. The shoe joint must be of the mechanical type with a standard non-restrained gland.

M.08 PRIVATE FIRE MAINS AND FIRE SERVICES.

M.08A Private fire mains are for fire hydrants installed

on private property rather than in a ROW or easement; and fire services are for fire sprinklers inside buildings, or other building fire systems. Peoples' ownership and maintenance of these private fire mains and fire services ends at the isolation valve installed in the ROW or easement on Peoples' water main.

M.08B Peoples requires the disinfection of these mains, services, and fire systems by developer/owner prior to Peoples opening the isolation valve on the water main.

M.08C Each fire main or fire service 4-inch NPS or larger must have a detector check valve installed equal to a Mueller Catalog No. A-2132-6, with meter trim package. The 5/8x3/4-inch NPS flow detection meter and 3/4-inch NPS angle double check valve assembly must be in an approved meter box approved by Peoples.

M.08D Each fire main or fire service smaller than 4-inch NPS must have a double check valve assembly installed equal to a FEBCO Model 805Y or 805YD, with a brass fitted by-pass with a 5/8x3/4-inch flow detection meter and 3/4-inch NPS double check valve assembly. This assembly must be installed at least one foot above grade measured from the lowest point of the main assembly.

M.08E When any freeze protection is included in a fire sprinkler system such as antifreeze loops, Foamite, et cetera, a reduced pressure zone backflow prevention assembly is required at the fire service entrance to the building.

M.09 SERVICE LINES TO CUSTOMER PROPERTY

M.09A Minimum size for any service line is 1-inch nominal pipe size even in the case of a 5/8x3/4-inch or 3/4-inch NPS meter installations. All other service lines may be sized by the owner, developer, an engineer, or an architect, but are subject to final recommendation by Peoples. In all cases, proper sizing shall be the responsibility of the developer/owner.

M.09B Tapping of PVC mains for service lines must be in compliance with AWWA Manual 23. All tap holes into the main must be a minimum of 85% of the NPS of the service line; except for 3-inch NPS taps which may be one full pipe size larger.

M.09C Service saddles for 1-inch to 2-inch NPS service lines on main sizes 2-inch to 12-inch NPS shall be Ford Style FC101 or FC202 saddles that are epoxy coated iron with 18-8 stainless steel band and bolts; or equal, only if approved by Peoples.

M.09D Service saddles for 3-inch to 12-inch NPS services lines on main sizes 4-inch to 12-inch NPS shall be Ford Style FAST tapping sleeves with all metal and bolts being 18-8 stainless steel with service flanges conforming to AWWA C207; or equal, only if approved by Peoples.

M.09E Corporation Stops for 1-inch NPS service lines shall be Ford FB1100 ballcorps with 1-inch NPS MIPT inlet and 1-inch NPS pack joint outlet for CTS polyethylene tubing.

M.09F Corporation Stops for 1&1/2-inch and 2-inch NPS service lines that are PVC Schedule 80 shall be Ford FB 1700 ballcorp with MIPT inlet by FIPT outlet; or if the service lines are 1&1/2-inch or 2-inch NPS CTS polyethylene tubing, the corporation stops shall be Ford FB1100 ballcorps with MIPT inlet and pack joint outlet for CTS polyethylene tubing. The inlet, valve, and outlet size shall be the same NPS opening as the service line NPS.

M.09G Corporation Stops for 3-inch NPS services lines and larger shall be standard double-disc full-circle-port tapping gate valves, iron body bronze mounted, non rising stem, with two-inch square DI or CI operating nut. These shall be installed with a valve box as described elsewhere in these specifications.

M.09H Service piping for 1-inch NPS service lines shall be CTS 200 PSI polyethylene tubing equal to AWWA Standard C901. No polybutylene tubing is approved, nor will be approved even if specially requested.

M.09I Service piping for 1&1/2 to 2-inch NPS services shall be CTS 200 PSI polyethylene tubing equal to AWWA Standard C901.

M.09J Service piping for 3-inch NPS services and larger must be the same as DI or PVC main pipe as specified in M.02 or M.03 of these specifications.

M.09K Service Stops for 1-inch NPS services must be Ford Catalog Number B41 ball valve curb stops with 1-inch pack joint inlet for copper or CTS plastic tubing and 1-inch FIPT outlet.

M.09L Service Stops for 1&1/2-inch to 2-inch NPS services must be Ford Catalog Number B11 ball valves with FIPT both ends if the service line is PVC Schedule 80 pipe; or Ford Catalog Number B41 with pack joint inlet for copper or CTS plastic tubing and FIPT outlet if the service line is polyethylene.

M.09M Service stops for 3-inch and larger service lines are to be gate valves equivalent to main valves as specified in

M.05 of these specifications.

M.09N Until a meter is set all service stops are to be double tied with heavy duty wire-ties in a vertical position to a blue painted pressure treated 2x4-inch wood stake four feet long with a 1&1/2 foot bury.

M.10 BACKFLOW PREVENTION.

M.10A Backflow prevention will be installed based on the sole discretion of Peoples per its established backflow prevention policy, and will be paid for solely by the developer/owner.

M.10B Reduced Pressure Zone Backflow Prevention Assemblies will be required for all high hazard conditions. These shall be FEBCO Model 825Y for 3/4-inch up to 2-inch NPS meters, and FEBCO Model 825YD for 3-inch up to 10-inch NPS meters. These must be installed according to AWWA Manual M14, "Cross-Connection and Backflow Prevention" and the manufacturer's installation instructions.

M.10C Double Check Valve Assemblies will be required for all low hazard conditions. These shall be FEBCO Model 805Y for 1&1/2-inch and 2-inch NPS services and FEBCO Model 805YD for 2&1/2-inch up to 10-inch NPS services. These must be installed according to M.10B of these specifications.

M.11 AIR AND VACUUM RELEASE VALVES

M.11A Air and Vacuum Release Valves may be considered necessary for bridge crossings, aerial or underwater crossings, or where there is a vertical grade change of greater than five feet in a 2,000 feet section of main, or shorter.

M.11B When considered as necessary by Peoples shall be manufactured by Empire Specialty Co., Inc. (Mars, PA) Figure 905, or approved equal.

INSTALLATION

I.01 HANDLING AND STORAGE. Transporting, handling and storage of pipe and other materials shall be done in a manner to ensure installation in a sound and undamaged condition. In general: ship, move and store with provisions to prevent movement or shock contact with adjacent units; do not drop or bump; use slings or other lifting devices to protect from damage

of materials, coatings, surfaces; brace or anchor as required to prevent displacement after establishing final position.

I.02 INSTALLED LOCATION. All water mains, valves, fire hydrants, building service lines, and other WDS appurtenances must be installed within a ROW or easement in the relative or specified position as shown on the Peoples' approved engineering, architectural, or surveying plans

I.03 PRE-INSTALLATION GRADES. No water line construction will be installed unless the project ground contour rough grades have been established by soil relocation and grading.

I.04 ORDER OF INSTALLATION. No driveways, parking, or walkway paving will be started prior to the installation of any water mains.

I.05 ACCEPTABLE WEATHER/WATER CONDITIONS. Make installations only when weather and trench conditions are suitable. Do not lay pipe or WDS appurtenance in water; dewater ground if necessary.

I.06 BACK FILLING EXCAVATIONS. Back filling material must be dry and free of any rocks, debris, or sharp objects. The bottom of all trenches for the laying of mains must also be free of any rocks, debris, or sharp objects. Trench backfilling must be done in such a manner as to not damage or dislocate the installed pipe, fittings, or valves.

I.07 BACK FILL COMPACTION. Back fill compaction must meet County standards for restoration of earth conditions in ROWs and easements after excavations.

I.08 BURY DEPTH OF MAINS. Depth of bury of mains, main fittings, and main valves must be a minimum of 36 inches from finish grade to the top of the pipe.

I.09 BURY DEPTH OF SERVICE LINES. Depth of bury of service lines (pipes) shall be a minimum of 18 inches from finish grade except within three feet of the Peoples meter box where it connects to the service line.

I.10 WATER/SEWER MINIMUM SEPARATION. Water and sewage mains must be installed with minimum separation between pipes. Where water and sewage mains are laid in parallel there must be a minimum of 10 feet between the closest edges of the pipes if both are pressure mains, or between the water main and gravity sewer manhole, as applicable. When water and sewage mains cross, there must be a vertical distance of 18 inches minimum between the closest edges of the pipes; and water mains must be installed

above sewer mains. No Water pipe shall pass through or come in contact with any part of a sewer manhole.

I.11 CROSSING UNDER STRUCTURES. Ductile iron pipe with mechanical joints and restrained glands shall be used for water mains when crossing under pipe, conduit, or structure of 24 inches in diameter or greater when a 6-inch separation distance cannot be maintained. This protection shall extend a minimum of 5 feet beyond the crossed structure.

I.12 SERVICE LINE CASING. Service lines up to 2-inch NPS that are installed under paved roads or other paved areas shall be encased under the pavement and two foot beyond with a PVC casing which shall be of a size large enough so there is ample clearance for the water pipe joints of the encased pipe to slide freely through the casing. This casing may be PVC Class 200; the same type of pipe as specified in M.03 here-in

I.13 CUTTING OF PIPE. Cutting of pipe or tubing shall be made with a proper saw and saw blade, or an industry standard cutting tool. Small diameter pipes shall only be cut with a proper cutting tool; hack saws cuts are not acceptable. All burrs or sharp edges must be removed. Lined pipe linings that are damaged must be repaired according to the pipe manufacturer's spec.

I.14 LAYING OF PIPE. Pipe laying must follow pipe manufacturer's instructions and AWWA Standard C600 and C900 as to trench bed, pipe barrel deflection, joint deflection, joint insertion distances, backfilling, and et cetera. Pipes are to be laid in a way that the spigot end of a pipe being laid is inserted into the bell end of a pipe that is already laid.

I.15 TEMPORARY PLUGS. Temporary water-tight pipe plugs must be installed whenever laid pipe in an un-backfilled trench is left unattended and no one is actively working on laying more pipe; such as overnight or any period of longer than three hours.

I.16 THRUST BLOCKING.

I.16A Meg-a-lug mechanical joint glands designed for DI pipe are acceptable for DI pipe and PVC pipe. Joints to be restrained are: all horizontal or vertical turns utilizing any pipe fitting; all permanent or long-term temporary dead-end plugs or caps; and the first pipe joint in either direction from any restrained fitting.

I.16B Concrete thrust blocking may be used based on AWWA

Manual M23 "PVC Pipe—Design and Installation". Concrete thrust blocking, only, shall be used for fire hydrants, and care must be taken to not plug or otherwise obstruct the fire hydrant shoe weep holes, which are also known as hydrant barrel drain holes. When concrete thrust blocking is used, six mil thick polyethylene plastic sheeting shall be secured to the hydrant shoe or pipe fitting so that future repairs are easier if the thrust block has to be removed to effect the repairs.

ACCEPTANCE

A.01 FLUSHING. After the new water distribution system is fully backfilled and compacted, it is to be completely flushed while a Peoples inspector is present; this is to include all service lines.

A.02 PRESSURE AND LEAK TEST. After the system is flushed, it is to be hydrostatic pressure and leakage tested in conformance with AWWA Standard C600 while a Peoples inspector is present. Segment testing will be required if a large project phase is tested all at once and it fails. Re-testing must be done after any repairs if a test fails; and this shall be repeated until the test passes the standards. During the test the installer must show the Peoples inspector that all main valves in the test segment are open. The pressure test shall be done concurrently with the leakage test and shall be at 105 psig for one hour and the test pressure shall not vary by more than five psig, and the pressure must be measured at three distant points. The allowable leakage during the pressure test is per the formula and chart in AWWA Standard C600.

A.03 DISINFECTION. After the new water distribution system is pressure and leak tested it must be disinfected according to AWWA Standard C651. An acceptable form of chlorine is to be added in a manner to attain an initial concentration of 50 mg/l of free chlorine residual throughout the new water distribution system as checked at least five distant locations one of which shall be a service line; a residual of 10 mg/l free chlorine must remain after 24 hours. Flushing of the main after the test shall be done until the free chlorine residual is 2 mg/l or less; and flush must be disposed of without damage to public or private property, or fishes and wildlife. Four bacteriological samples from distant parts of the new WDS will be taken by a qualified technician after the 24 hour contact time at sample points designated by a Peoples, and delivered via chain-of-custody log to a FDH approved laboratory. Any total coliform test failures for any sample point may be re-sampled only once with-out having to repeat the 50 mg/l dose disinfection process.

A.04 AS-BUILT PLANS. Upon completion of the water facilities installation, the developer/owner must cause the engineer of record to prepare, certify, and submit "As-Built" water distribution system plans to Peoples in the form of a digital AutoCAD file.

A.05 CONVEYANCE. All connections to Peoples water distribution system, including all pipes, valves, fittings, hydrants and appurtenances up to and including the meter box must be assigned by the owner/ developer to Peoples by an Absolute Bill of Sale. A Release of Lien guarantee shall be provided with the Absolute Bill of Sale.

A.06 REPORT OF NEW WDS COST. Installation costs must be listed by Peoples' fixed capital chart of accounts so that these values can be entered in Peoples' general ledger non-earning fixed capital accounts according to FPSC and the U.S. Internal Revenue Service Code.

A.07 NEW WDS WARRANTY. The owner/developer is required to give Peoples a written warranty guaranteeing the installed system's materials and workmanship for one year from the date that the project is finally accepted by Peoples. This must be in the form of a performance bond or a corporate undertaking.

IF ANYTHING IN THESE SPECIFICATIONS IS NOT UNDERSTOOD, IT IS THE RESPONSIBILITY OF THE USER TO OBTAIN CLARIFICATION FROM PEOPLES.

Telephone: (850) 455-8552