

## 1. NEW DEVELOPMENTS

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### 1.1. LETTER TO DEVELOPERS

#### **SAMPLE FORM LETTER TO DEVELOPERS**

Dear

Enclosed are copies of the Waterworks Department's Procedures for approval and distribution installations specifications for new development.

If you have any questions, please let me know.

Director

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1.2. APPROVAL PROCEDURES

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1. Any subdivider, developer, or development group seeking to subdivide or develop land in St. Charles Parish should, prior to the preparation of an appropriate plan, contact the Department of Planning and Zoning to ascertain existing subdivision regulations, zoning regulations, as well as other parish, state, and federal guidelines regulating the use and development of land in the vicinity of the proposed subdivision. St. Charles Parish Code, Appendix C, St. Charles Parish Subdivision Regulations of 1981, Ordinance No. 81-8-2.
2. One (1) set of the proposed water system specifications and plans approved by a Louisiana Registered Professional Engineer will be presented to the Waterworks Department for review. In addition an electronic set of plans will be submitted to the Waterworks Department and will include all infrastructure and utilities.
3. Plans and specifications for new developments must be submitted to the Louisiana Department of Health and Hospitals for review. The plans will be checked for conformity with applicable provisions of the State Sanitary Code. Approval refers to sanitary features of design only and is not to be taken as approval of structural details.
4. Not less than seven (7) days before commencement of construction, the contractor must submit to the Waterworks a written notice stating the date construction will begin.
5. A pre-construction conference will be held by the contractor with the Waterworks' representative(s).
6. Construction must begin within twelve (12) months of the date of approval or the plans and specifications must be resubmitted to the Waterworks. Approval for any portion unfinished after three (3) years is automatically rescinded. Plans and specifications must then be resubmitted to the Waterworks for approval.
7. Upon completion of construction, pressure and leakage tests will be conducted, the lines disinfected and bacteriological samples taken.
8. The Louisiana Department of Health and Hospitals must approve bacteriological tests on the new system.
9. A final inspection and approval must be obtained from the Waterworks.

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NEW DEVELOPMENT APPROVAL PROCEDURE (cont.)

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10. The contractor shall guarantee the installation against any defects beginning with commencement of construction and ending one year after approval by the Council. Any lines, hydrants, fittings, etc., which fail due to defective material or faulty installation will be repaired promptly by the contractor. If immediate repair is not made, Waterworks' personnel will make the repair and the developer will be billed for actual time, material and equipment required for repairs.
11. The Waterworks will be given one (1) set of "As Built" plans and one set of electronic plans.
12. A notice of completion must be submitted to the Louisiana Department of Health and Hospitals.
13. Upon final acceptance of the development, the Waterworks will give written notice to the Planning and Zoning Commission.
14. Before a new water meter service can be installed, the Waterworks must be presented with a Planning and Zoning "Certificate of Zoning Compliance", a "Sewer Service Permit" (if applicable), a payment for a meter installation service charge and a meter deposit. New meter services will be placed on the right-of-way property line.





## 2. SPECIFICATIONS

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### 2.1. MATERIAL SPECIFICATIONS

Specification references to Standard Specifications of AWWA, ASTM, ANSI, AWWA, etc., shall apply to the latest edition, revision or addendum thereto.

**Ductile iron pipe** shall be mechanical joint type manufactured and factory tested in accordance with AWWA C150 and AWWA C151, Class 50, cement lined conforming to AWWA C104.

**PolyVinyl Chloride (PVC) plastic pipe** shall be Class 150 with integral bell that meets the requirements of AWWA C-900 and Underwriter's Laboratories (UL). The pipe shall meet requirements of wall thickness, of dimension ratio DR18 and shall be manufactured to ductile iron size outside dimensions. Only PVC in blue color will be used underground. The standard length shall be 20 feet. The bell shall consist of an integral wall section with reinforced rubber ring. Mechanical joint fittings will be used with PVC pipe.

**Polyethylene pipe** shall be Class DR-11 Ductile Iron size that meets the requirements of AWWA C-906. Polyethylene pipe will only be allowed in remote areas and will not have any service taps made on it. The final decision on allowable usage of polyethylene pipe will be made by the Waterworks Department.

**Ductile iron mechanical joint fittings** shall be the compact type conforming to AWWA C153 and AWWA C110 rated for 350 psi working pressure, cement lined in accordance with AWWA C104 with joints, ring type gaskets, lubricant and accessories conforming to applicable requirements of AWWA C111. Corten Teflon Coated bolts shall be used.

**Gate valves** shall be iron bodied, epoxy coated interior, fully supported modified wedge disc with a resilient rubber seat ring internally reinforced by a concentric steel ring, which are manufactured and tested in accordance with AWWA specification C509. They shall be 200 psi working pressure and 400 psi test pressure. Valves shall have a non-rising stem with a 2 inch square wrench nut, with S/S bolt and/or nut, shall open by turning counter-clockwise and shall be equipped with O-ring stem seals. The bonnet bolts shall be stainless steel types 304. Stainless steel nuts and bolts type 304 shall be used when connecting flanged gate valves to flanged tees. Valves shall be Mueller series A2360-20 (-16) or approved equal.

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## MATERIAL SPECIFICATIONS (cont.)

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**Tapping sleeve valves** shall be similar to gate valves specified above and shall be Mueller A2360-16 or approved equal.

**Tapping sleeves** shall be the stainless steel sleeve type. The body shall be a full circle band that meets or exceeds the Waterworks specifications for repair clamps, stainless steel 18-8 type 304 with gridded overlapping virgin neoprene rubber gasket. The flange shall be 304(18-8) stainless steel or ductile iron AWWA C207 Class D ANSI 150 lb. drilling recessed to accept a standard tapping valve. All bolts shall be type 304 stainless steel. Tapping sleeves shall be Smith-Blair 662 or 663, JCM 432, Romac SST or Mueller H-304.

**Valve boxes** shall be constructed of cast iron for roadway service, with a minimum inside diameter of 5 1/4 inches. The box shall be the adjustable screw type consisting of two pieces (a base and a top section) and shall include a cover. The cover shall be of the deep (2 inches) socket type with the word WATER cast on the top. The box shall be Tyler 461-S/562-S or approved equal.

**Valve box risers** shall be made of cast iron for roadway service. The riser shall fit into the top section of Tyler 461-S/562-S valve boxes and accept the lid. The riser shall be a Trumbull 357 series or approved equal.

**Fire hydrants** shall conform to AWWA specification C-502. Main valve shall be 5 1/4 inch compression type which closes with pressure. Hydrant shall have two 2 1/2 inch hose nozzles and one 4 1/2 inch pumper nozzle with nozzle caps and cap chains. All nozzles shall have National Standard threads. Operating nut shall be pentagonal measuring 1 1/2 inches from point to flat. Hydrant shall open by turning counter-clockwise. Hydrant shoe shall have mechanical joint connection for 6-inch pipe. The inside shoe shall be epoxy coated. Fire hydrant shall have two (2) drain holes. Hydrant barrel shall be of suitable length to set breakaway flange between 5" and 8" above finished grade. Fire hydrants shall be red in color. Hydrants shall be Mueller A-423 Super Centurion 250 or equal.

**Romac grip ring pipe restrainers** shall be used for the installation of fire hydrants, tees, valves and any directional change of water main.

**Sleeves or clamps** shall not be used for water main installations except for connection to existing mains or as directed by the Waterworks.

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## MATERIAL SPECIFICATIONS (cont.)

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**Concrete precast slabs** around valve boxes shall be 2500 pound compression strength at 28 days, two feet square and 4" thick. The circular opening in the center of the slab shall be approximately 3/4" greater in diameter than the outer diameter of the valve box.

**Repair clamp** shall be a complete circle stainless steel clamp pre-assembled with a gasket, a bridge plate, lugs, nuts and bolts. The band shall be stainless steel type 304 with ends contoured into and positively attached to ductile iron or stainless steel lugs. The gasket shall be a lap type with tapered ends, gridded, of virgin neoprene rubber for water service. The bridge plate shall be stainless steel type 304 recessed flush and bonded into the gasket. Bolts shall be high strength type 304 stainless steel. Lugs shall be ultra high strength ductile iron to ASTM A536 or stainless steel. The clamp shall be a Smith-Blair 226 or 261, JCM 101 or 131, Romac CL1 or SS1, or Mueller 210 or 211 Stainless Steel.

**Lumber for thrust blocks or fixture foundation** shall be made with pressure treated southern yellow pine C-2.40 treated lumber for underground service.

**Concrete posts** shall be not less than 4 1/2 inches square with a length of 7 feet for valve markers. Each post shall be reinforced with two No. 3 deformed reinforcing bars. These posts may be secured from Precast Concrete Step Company, 901 South White, New Orleans, Louisiana.

**Pipe casing:** Refer to Pipe Casing section.

**Road surfaces:** Refer to Road Surface section.

Waterworks superintendent or leadmen must inspect all pipes, fittings and materials before they can be installed into the system.

**Meters:** Refer to Approved Meter section.

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## 2.2. DESIGN REQUIREMENTS

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**Water mains** shall be a minimum of 8-inch diameter. Larger diameter mains may be required by the Waterworks to insure an adequate supply to the development. Water mains shall be valved at each intersection, as required at tees or crosses and at a minimum of every 1000 feet. Valves shall be located as shown on approved plans and shall be set with stems vertical. The contractor will indicate the location of each valve by means of a "V" shaped notch cut into the curbing at the valve site. Each valve must have a valve box centered over the valve stem to allow free access of a valve wrench. The top shall be set level with the finished grade surface. A pre-cast concrete slab shall be set around each valve box and the top level with the finished grade surface.

**Cover over water lines** shall be maintained as follows:

- A. 8" main shall have 36" to 40" of cover.
- B. Mains larger than 8" shall have 42" to 46" of cover.
- C. Mains which cross under ditches shall be 24" to 28" below the invert of the ditch.
- D. Mains which cross under a canal shall be installed under the canal 26" to 40" below the invert of the canal. If the invert of the canal is more than 20 feet in width, a casing must be installed.

**Water main looping:** All 6" water mains of 1500 feet or more, and 8" water mains of 1000 feet or more, including existing mains, shall be looped to two (2) separate sources of water, where practical.

**Fire hydrants** shall be installed not more than 500 feet apart on the property line extended and at ends of lines to allow for flushing. Install all hydrants in a exact vertical position. Pumper nozzles shall face toward the street. Hydrant shall have proper bury length so that the bottom of the safety flange is between 5" and 8" above finished grade level. Each hydrant shall have a 6" main lead of at least 3 feet. Hydrants shall be attached with Romac grip ring pipe restraints. Hydrant valves shall be a minimum of 3 feet from hydrants located along a highway or thoroughfare shall be valved. Hydrants that require valves shall be connected by a mechanical joint x flanged tee.

## DESIGN REQUIREMENTS (cont.)

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**Pipe** shall be received, stored, handled and installed strictly in accordance with the manufacturer's instructions. Only lubricant specified by the pipe manufacturer shall be used. Ends of pipe and fitting shall be thoroughly cleaned before applying joint lubricant. During joint assembly, PVC pipe shall be pushed into the bell up to the circumferential reference mark. In no case will solvent cement be used for joining pipe. Tighten mechanical joint bolts alternately on opposite sides in order to compress the gasket uniformly. All underground ductile pipe and fitting shall be covered with 8 mil polyethylene film.

Pipe shall be installed according to applicable AWWA Standards.

Each section of pipe and each fitting shall be examined for defects before lowering in the trench. Any defective or damaged material shall be rejected and removed from the work site. All pipe and accessories shall be carefully lowered into the trench in such a manner as to prevent damage. Under no circumstances shall pipe or accessories be dumped or dropped into the trench. Holes for couplings or bells shall be cut for all pipe regardless of type of pipe used. The barrel of the pipe shall rest evenly on the trench from end to end except for coupling or bell holes. If the trench bottom will not support the weight of the fitting, a foundation of select earth or shell shall be installed. Holes shall be sufficiently large to allow proper makeup of joint so that joints do not support the pipe weight.

All pipe and material shall be kept clean during and after laying. If necessary, a swab will be used. Trench water shall not be permitted to enter pipes. The Waterworks reserves the right to suspend pipe-laying operations when unsuitable trench conditions exist. When pipe-laying is not in progress, the open ends of the pipe shall be closed by use of temporary pipe plugs or night caps. Plywood or similar make shift blocking which does not produce a water tight seal will not be acceptable.

All pipe shall be laid true to alignment and grade. Required horizontal or vertical deflection shall not exceed 75% of the maximum recommended by the pipe manufacturer.

**DESIGN REQUIREMENTS (cont.)**

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**Hot taps** made by the contractor on existing water mains shall be made with a Mueller CL12 or C1-36 tapping machine.

**All plugs, tees, bends and Hydrants** shall have celcure treated lumber rated for underground use for thrust blocks and fixture foundation of sufficient size to resist the force of water on or through the fitting.

**Any underground facility** installed that is non-conductive to electric current must be installed with a non-corrosive tape placed directly over and on the center of the facility about 24 inches above the pipe. The tape must be connected to all fixtures and appurtenances. A tracer wire shall also be attached directly to the pipe, all fixtures and appurtenances. The tracer wire will be run to the top of each valve box to allow direct connection to the wire.

Radial clearance between parallel water and sewer lines shall be not less than six (6) feet radial distance from water lines. In the event that sewer lines cross water mains, sewer lines must be at least eighteen (18) inches below water main at a 90° crossing. No utilities shall be installed directly above the water lines running parallel or closer than three (3) feet to the center of the water main.

2.3. METER SERVICE LINES

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**Meter service lines:** Underground service line valves and fittings shall conform to AWWA C800. Corporation stops shall be Mueller H-15000, or approved equal. Curb stops shall be Mueller H-15166, or approved equal. Copper tubing conforming to AWWA C800 or polyethylene tubing 200 psi PE3408 or approved equal conforming to AWWA C901 and ASTM D2737 may be used for 1" service lines.

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2.4. CONTRACTORS

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The contractor shall conduct all work in such a manner that will not disturb the existing water line or contaminate drinking water in existing Waterworks' lines.

The contractor must take every precaution to keep water mains clean before and during installation to avoid unnecessary delays due to bacteriological contamination.

The contractor shall not expose, cut, tap into or connect to existing Waterworks' lines and shall not open or close any valves or any fire hydrants without first advising and securing permission of the Waterworks and a Waterworks' representative must be present.

The contractor must purchase water used for any purpose other than for pre-arranged flushing and testing of the water lines.

Any breakage of existing water lines or other utilities is the responsibility of the contractor.

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2.5. INSTALLATION INSPECTION

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The installation of water systems shall be inspected by the Waterworks' designated inspector and Waterworks' personnel for compliance with approved plans and specifications at the expense of the developer.

The contractor shall extend full cooperation to the inspector and any Waterworks' personnel in the course of making inspections and shall comply with all reasonable requests to observe work in progress and to review work which has already been performed. The inspector and Waterworks' personnel will be allowed an opportunity to inspect all lines, valves and fittings before being covered. Required pressure and leakage tests shall be witnessed by the inspector and by Waterworks' personnel.

The Waterworks shall be reimbursed for all fees and expenses incurred by the inspector, prior or concurrent with, requesting the Waterworks to approve the installation.

## 2.6. TESTING / DISINFECTION

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Flushing, pressure tests and leakage tests for ductile iron, polyethylene and PVC pipe shall be performed in accordance to applicable sections of AWWA C600 at the pressures, time and allowable leakage stated below.

### 2.6.1. Flushing

Before testing and disinfecting, the pipeline shall be flushed clean with potable water. Flushing shall be accomplished through a stand pipe of the same diameter of the newly installed water main.

The contractor shall notify the District prior to filling or flushing new lines. The contractor shall not operate any valves in the Waterworks' system without securing permission. Waterworks' personnel shall be present prior to any flushing.

The contractor will be allowed four times the volume of water in the pipe being laid for flushing purposes. Any additional water required for flushing shall be charged to the contractor at the current water rates.

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## TESTING AND DISINFECTING WATER LINES (cont.)

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### 2.6.2. Pressure and Leakage Test

Waterworks' personnel shall be present prior to the commencement of any pressure test. Each section of line between valves and/or a longer section if permitted by the Waterworks, shall be submitted to a hydrostatic pressure test and leakage test of 120 psi for not less than two hours.

Water lines being pressure tested must only be connected to a Waterworks' line by the use of a reduced pressure backflow assembly.

Each section of pipe to be tested shall be slowly filled with water, and all air expelled from the pipe through taps at points of highest elevation in the section to be tested. If hydrants or blow offs are not available at high spots in the line for air removal, taps shall be made to accommodate a standard 3/4" Mueller H-15000 corporation stop with Mueller threads, or equal, which shall be removed and the tap plugged with a brass plug upon completion of the test.

After the test pressure of 120 pounds per square inch has been obtained, verify all valves in the section being tested are open completely and commence to leakage test in accordance with AWWA C605-94 as follows: Leakage shall be defined as the quantity of water that must be supplied into the pipe section being tested to maintain a pressure within 5 psi of the specified leakage test pressure after the pipe has been filled with water and the air in the pipeline has been expelled. No installation will be accepted if the leakage is greater than that determined by the formula:

$$L = (ND \times \text{Square Root of } P) \text{ Divided by } 7,400$$

Where: L = allowable leakage, in gallons per hour  
N = number of joints in the length of pipeline tested  
D = nominal diameter of the pipe, in inches  
P = average test pressure during the leakage test, in pounds per square inch (gauge)

$$\text{Leakage gallons per hour} = (\# \text{ of joints}) \times (\text{Pipe Diameter}) \times (.00148)$$

All pressure test and leakage tests are performed at 120 psi.

**TESTING AND DISINFECTING WATER LINES (cont.)**

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If any loss in pressure is noted during the two-hour test period, the contractor shall examine the pipeline and determine the source of the leakage. If leaks are found in a joint, the joint shall be disassembled, and necessary repairs made. Clamps shall not be used to repair leaks. Any cracked or defective pipes, fittings or specials discovered in consequence of this pressure test shall be removed and replaced with sound material at the contractor's expense. After repairs, the section of line shall be re-tested until a hydrostatic pressure and leakage test of 120 psi is maintained for not less than two hours.

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## TESTING AND DISINFECTING WATER LINES (cont.)

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### 2.6.3. Leakage Test

Water lines being tested for leakage must only be connected to a Waterworks' line by the use of a reduced pressure backflow assembly.

The pipeline as a whole or in such sections as the Waterworks may designate, shall be tested to a pressure of 120 pounds per square inch. The 120 pounds per square inch pressure shall be held a sufficient time to allow a true evaluation of leakage and shall depend upon the length of line tested, except, that in no event shall the pressure be maintained for less than two hours. Suitable means shall be provided for determining the quantity of water lost by leakage during the final hydrostatic pressure test. No pipeline or portion thereof shall be accepted until or unless the leakage is within the limit of 0.00148 gallons per joint per inch of nominal pipe diameter per hour.

Any section of line that fails to meet the leakage test shall be repaired by the contractor and re-tested until the leakage is within the allowable limits. The Waterworks' employee must witness final pressure and leakage tests.

## TESTING AND DISINFECTING WATER LINES (cont.)

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### 2.6.4. Disinfecting

After completion of leakage tests, all parts of the pipelines installed shall be disinfected by the Department of Waterworks at \$800.00 per 3000'. Disinfection shall conform to AWWA Standard C651. If the discharge of highly chlorinated water would be harmful to vegetation, wildlife, or the environment, measures must be taken to impound and neutralize the chlorinated water prior to discharging or to remove and dispose of in an approved manner, at no additional cost.

### 2.6.5. Chlorine Application

All new mains and services and any portion of existing mains repaired shall be chlorinated by the application of sufficient chlorine to provide a chlorine residual of not less than 10 ppm after the chlorine solution has been held in the pipeline for 24 hours. Mains should be sufficiently clean after proper precautions during laying and flushing of the line so that an initial application of 50 ppm of chlorine will produce the required residual. Additional chlorine may be necessary if the mains have not been kept clean. Calcium hypochlorite conforming to AWWA B300 is to be used for chlorination. Chlorine solution shall be applied at one end of the line being disinfected. Water shall be withdrawn from the opposite end and from the ends of all branches until the chlorine solution completely fills all lines to be disinfected. Valves and hydrants in the lines being chlorinated shall be operated while the chlorine solution is in the line.

### 2.6.6. Final Flushing

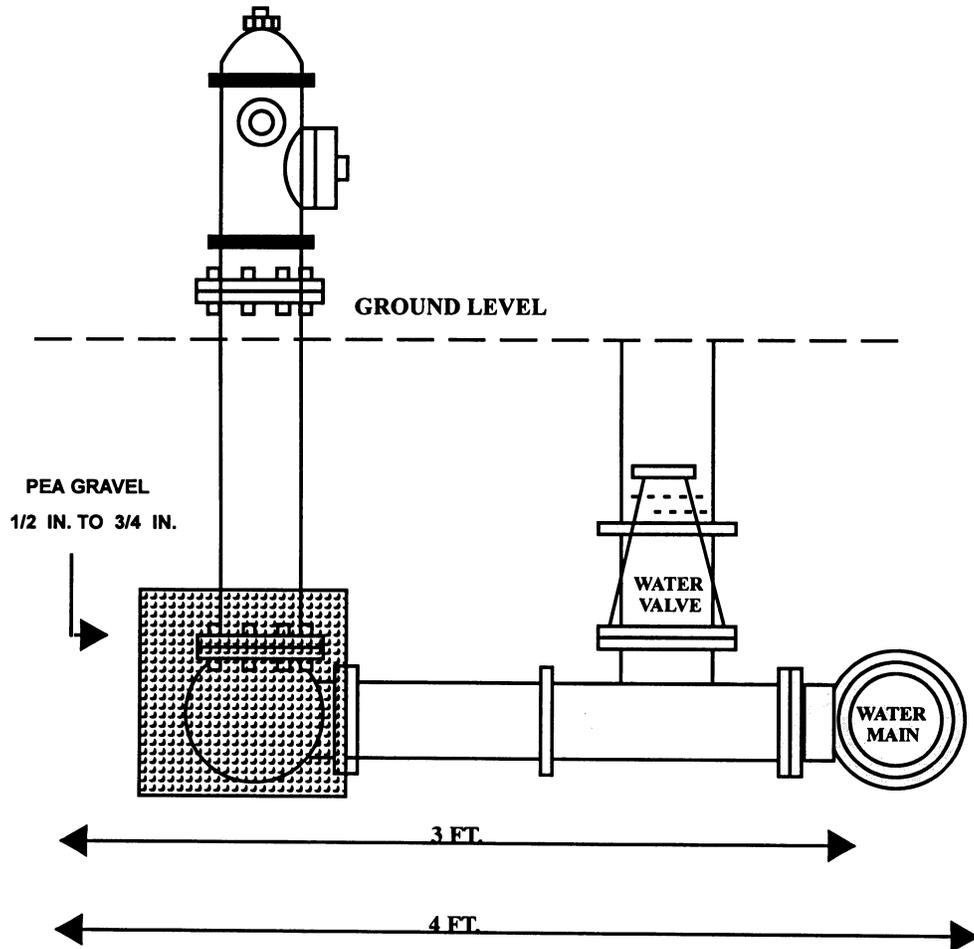
After the 24-hour retention period, the chlorine solution shall be flushed out of the lines for appropriate disposal and the lines filled with potable water. The lines shall then stand for 24 hours before samples are taken for bacteriological tests. Sample points shall be installed as directed by the Waterworks. Samples shall be taken by the Waterworks' personnel and submitted to the State Department of Health for bacteriological examination. If any samples show a positive reaction, that portion of the line represented by the sample shall be disinfected again and the flushing and sampling repeated. This procedure shall be repeated until all portions of the system are completely disinfected.

2.7. DIAGRAMS



2.7.1. Fire Hydrant

**FIRE HYDRANT DETAIL  
N.T.S.**



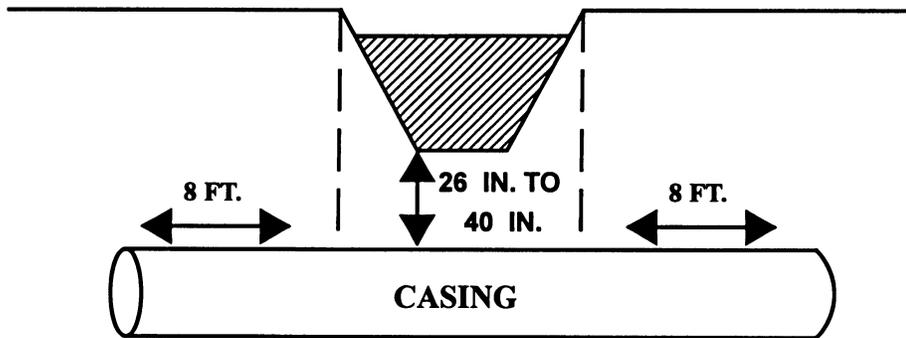
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2.7.2. Canal Crossing

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**CANAL CROSSING CASING**



**USE MECHANICAL JOINT DUCTILE IRON WATER MAIN WITH RETAINER GLANDS THROUGH THE CASING AND EXTEND AT LEAST 40 FEET BEYOND EACH END OF THE CASING.**

**WHEN REQUESTED, INSTALL A VALVE ON EACH SIDE OF THE CANAL WITH ROMAC GRIP RETAINERS ON PVC C900 WATER MAIN.**