

Public Water Supply District #12 Of Jefferson County, Missouri

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Water Main Extension Policies, Procedures, and Specifications

- **Submittal:**

- The District's "Standard Water Main Extension Agreement" should be completed, signed and submitted to the District along with all requested forms and documents.

- **Specifications:**

- PWSD No. 12 staff (or their designated representative) must supervise all new connections to the existing water distribution system. No exceptions will be granted to this requirement.
- All tapping sleeves for "hot taps" shall be made of stainless steel and be supported with blocks during the tapping operation.
- When feasible, all water main extensions shall be connected to the existing water distribution system using at least two (2) separate connection points, creating a looped system.
- All "dead end" lines shall terminate with an approved valve and fire hydrant assembly.
- All water pipe shall be PVC SDR-21 pipe rated at 200 psi working pressure, NSF (National Sanitation Foundation) approved, or as specified by the District. Minimum pipe diameter is 8" for all water mains. All pipe used for crossing creeks shall be made of ductile iron (or an approved equivalent) using restrained joints. All road crossings shall be permitted and installed in steel casing with spacers per MoDOT and Jefferson County requirements.
- All water main pipe shall be laid to a depth of at least forty-two inches (42"), but not more than seventy-two inches (72") below the proposed finished street pavement grade or the proposed finished grade of ground over the pipe. This measurement will be to the outside, top of the pipe barrel. Under no circumstances will the seventy-two inches (72") of depth be exceeded without approval from the

District's engineer. The trench width shall not exceed the pipe diameter plus twenty-four inches (24").

- All pipe shall be placed on crushed limestone screenings as bedding material having a minimum thickness of six-inches (6"). The pipe shall be covered with the same material to a level at least six-inches (6") above the top of the pipe. The remainder of the ditch shall be filled with dirt, or in the case of street crossings, with clean, compacted rock. All backfill material shall be free of any rock or other debris exceeding six-inches (6") when measured in any direction.
- During construction, open pipe ends must be sealed when unattended to prevent the possibility of contamination.
- Upon commencement of construction, and during construction, District personnel shall inspect all water mains prior to backfill to ensure that construction is being carried out in the manner specified and to the satisfaction of the District. Backfilling prior to inspection may result in the line being excavated to verify construction standards are being met. If construction methods are improper and not to the satisfaction of the District, the developer and/or contractor shall be notified that water supply to the extension will not be furnished until all deficiencies have been corrected and approved by District personnel.
- Chlorine powder or tablets for disinfection shall be administered and later flushed per Missouri Department of Natural Resources guidelines.
- Tracer wire shall be #12 AWG THHN solid copper wire (or an approved equivalent) and be taped to the top of the pipe at not more than eight-foot (8') intervals. Where necessary, weatherproof, direct bury splice kits shall be used. Tracer wire shall be placed along the outside of each main line and fire hydrant valve box, terminating under the lid.
- All gate valves shall be AWWA approved, rated for 250 psi working pressure, resilient wedge type, NSF certified, epoxy coated inside and out, must have a 2" square operating nut, and be of domestic origin.
- Valve boxes shall be cast iron, adjustable, and have a cast iron lid marked "WATER". Cast iron "top hat" valve covers and PVC pipe may be allowed for unusual situations with permission from the District.
- Fire hydrants shall be Mueller Super Centurion 250, American Flow B84B or an approved equivalent breakaway, traffic-type hydrant. All hydrants shall be rated at 250 psi working pressure, have a 5 ¼" main valve, two 2 ½" nozzles and one 4 ½" nozzle with standard fire hydrant threads and shall be red in color. The center of the lowest hydrant nozzle shall be 20" above the finished grade and the 4 ½" nozzle shall face the nearest street, or as directed by the Fire Marshal having authority.
- All fire hydrants shall have a gate valve attached with an anchor-type coupling measuring not more than twenty-four inches (24") or less than eighteen (18") inches from the hydrant. Hydrants and valves shall be placed on a flat, solid concrete block and stand plumb in all directions. Hydrant drain holes shall be kept clear of

concrete and other debris. A minimum of eight cubic feet (8ft³) of 1” clean rock shall be placed around the hydrant drain holes.

- Fire hydrants and main-line valves shall be located no more than five hundred feet (500’) apart in commercial districts and one thousand feet (1000’) apart in residential districts, or as specified by state standards or the local Fire Marshal having authority.
- All elbows, tees, and other fittings shall be cast iron, mechanical joint type, of domestic origin, and shall be attached using a Mega-Lug restraint gland (or an approved equivalent).
- All thrust blocks shall be formed and poured-in-place per District detail drawings or as directed by the District’s engineer. Pre-cast concrete blocks or dry concrete mix will not be accepted as a substitute.
- Horizontal and vertical separation of water and sewer lines shall conform to current Missouri regulations stated in MO 10 CSR 60-10.
- A four-inch (4”) minimum pipe shall be located at lot lines (or as otherwise agreed) to facilitate future service-line street crossings. These pipes shall be installed like the water main, sealed, and marked on each side of the street with a steel fence post terminating at least four feet (4’) above grade and painted blue.
- All bores and road crossings shall be in accordance with specifications of the District, the State of Missouri, and the Jefferson County Highway Dept., with all necessary permits being the responsibility of the developer and/or contractor.
- All lines shall be disinfected and flushed in accordance with current AWWA and Missouri Department of Natural Resources specifications. Water samples will be taken by District personnel and submitted for bacteriological testing at a state-certified laboratory. Any section of water main that fails to meet bacteriological testing requirements shall be flushed, disinfected and sampled again. The developer may be billed for excessive, repeat sampling.
- All lines, hydrants, and fittings shall be hydro-tested to two-hundred (200) psi for two (2) hours with no more than a five (5) psi drop in pressure. This test MUST be witnessed and approved by District staff or their designated representative. No exceptions will be granted to this requirement.
- Ground must be finish-graded with soil stabilization (seed & straw, hydro-seed, etc.) in place before a final inspection will be done.
- At the completion of the project, two (2) sets of as-built plans must be submitted to the District in paper format along with a digital file compatible with ArcGIS software.

- **Acceptance:**

- The following items must be completed before water service will be provided to the water main extension at the completion of the project:
 - District personnel will verify that the water main extension was installed to meet the specifications of PWSO No. 12 and the Missouri Dept. of Natural Resources.
 - The water main extension shall pass a pressure test monitored by District personnel or their designated representative.
 - The water main extension shall pass a bacteriological test administered by District personnel or their designated representative.
 - District personnel will electronically locate the new main extension to verify that all trace wire is functional. Any needed repairs will be the responsibility of the developer.
 - The developer's engineer will provide two (2) paper copies and one (1) digital copy compatible with ArcGIS software of "as-built" plans for the water main extension to the District.
 - A copy of the final recorded subdivision plat will be provided to the District.
- Upon successful completion of the above items, the District shall accept the water main extension at its next regular meeting of the Board of Directors. The date of acceptance will begin a one (1) year warranty period for the developer to guarantee the project. Should any repairs or replacement of lines be needed during this time, the District will notify the developer and/or contractor, who shall immediately correct the problem. Should the developer fail to correct the problem in a timely manner, the District shall correct the problem at the developer's expense.
- The developer shall complete a form provided by the District indicating the value of the line(s) donated and the date of acceptance.
- The District will send a letter to the developer at the end of the warranty period acknowledging responsibility for the extension.