

## **WATER MAIN CONSTRUCTION**

1. All water main construction shall be in accordance with the "Standard Specifications For Water and Sewer Main Construction in Illinois", latest edition, and revisions thereto, the notes and on the plans, and in accordance with codes and ordinances of the United City of Yorkville, Illinois.
2. All water main shall be ductile iron pipe Class 52 with mechanical or push-on joints and shall conform to ANSI A21.51 (AWWA C151), ANSI A21.50 (AWWA C150) and ANSI A21.11 (AWWA C111). Pipe shall be manufactured in the United States.
3. All fittings shall be ductile iron and shall conform to ANSI A21.53 (AWWA C153). Fittings and accessories shall be manufactured in the United States.
4. All pipe and fittings shall be cement lined in accordance with ANSI A21.4 (AWWA C104).
5. All fittings shall be mechanical joint fittings.
6. All mechanical joint fittings, valves and hydrants shall be restrained with retainer glands. Retainer glands shall be EBAA Iron MEGALUG Series 1100.
7. All water main and fittings shall be wrapped with polyethylene. Polyethylene shall have a thickness of 8-mil in accordance with ANSI A21.5 (AWWA C105).
8. Long radius curves, either horizontal or vertical, may be laid with standard pipe by deflections at the joints. Maximum deflections at pipe joints and laying radius for the various pipe lengths shall be in accordance with AWWA C600. When rubber gasket pipe is laid on a curve, the pipe shall be jointed in a straight alignment and then deflected to the curved alignment. Trenches shall be made wider on curves for this purpose.
9. All gate valves shall be resilient wedge type conforming to AWWA C515 and have a non-rising stem, with a standard operating nut and shall open in a counter-clockwise direction. Gate valves 10-inches or larger shall be in valve vaults. Gate valves under 10-inches shall be in either a vault or cast iron valve box and shall be located outside of pavement and/or sidewalks. If the gate valve must be installed within pavement, then it shall only be in a valve vault.
10. All valves 16-inches or larger shall be butterfly valves with a non-rising stem, shall have a standard operating nut and shall open in a counter-clockwise direction. Butterfly valves shall be Clow or Pratt butterfly valves in accordance with AWWA C-504-00. Butterfly valves shall be in valve vaults.
11. All valve boxes shall be cast iron, two piece 5 ¼" shafts, screw-type Tyler model 664-S or approved equal with a valve box stabilizer. Lids are to be marked with "Water". (Valve box extensions if required are considered incidental).
12. All hydrants shall be in accordance with AWWA C502 and shall be a Clow F-2545 (Medallion) or a American Flow Control - Waterous WB-67-250 with one 4½" steamer nozzle and two 2½" hose nozzles, with national standard treads, a national standard operating nut, and above ground break flange. All hydrants shall have an auxiliary gate valve with a cast iron valve box.
13. Repair couplings shall be Smith Blair (Rockwell) D.I. coupling Type 441 or equal. Couplings shall be provided at locations shown on the plans or as required to make pipe connections.
14. All tees, bends, fire hydrants and valves shall be adequately supported with a concrete base, and supported laterally with poured in place thrust blocking against undisturbed earth.
15. All water mains shall have a minimum depth of cover of 5'-6".

16. All pressure taps to an existing City main shall be made with a Clow or American Flow Control (Waterous) ductile iron mechanical joint tapping sleeve for same size taps with the main. dissimilar size taps and mains shall be made with stainless steel tapping sleeves and shall be Mueller H-304, Smith Blair (Rockwell) 662-663 OR 664-665 OR Romac SST. A Clow or American Flow Control (Waterous) resilient tapping valve and shall be installed with the tapping sleeve. The tapping sleeve and valve shall be constructed in a valve vault with concentric cone.
17. No water service taps shall be made prior to the City receiving the IEPA operating permit.
18. All trenches caused by the construction of sewers, water mains, water service pipes and the excavation around catch basins, manholes, inlets and other appurtenances which occur within the limits of existing or proposed pavements, sidewalks and curb and gutters or where the edge of the trench shall be within two (2) feet of said improvements shall be backfilled with CA-6 crushed limestone (IDOT certified) and mechanically compacted.
19. Before acceptance by the City all work shall be inspected and approved by the City or its representatives.
20. Water mains and water service lines shall be protected from sanitary sewers, storm sewers, combined sewers, house sewer service connections and drains in accordance with Title 35: Environmental Protection, Subtitle F: Public Water Supplies, Chapter I: Pollution Control Board, Part 604 Design, Operation, and Maintenance Criteria, Section 604.1440 Sanitary Separation for Finished Water Main.
21. Whenever possible, a water main must be laid at least ten feet horizontally from any existing or proposed drain or sewer line. Should local conditions exist which would prevent a lateral separation of ten feet, a water main may be laid closer than ten feet to a storm or sanitary sewer provided that the water main invert is at least eighteen inches above the crown of the sewer, and is either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer. If it is impossible to obtain proper horizontal or vertical separation as described above, then the sewer must also be constructed per section 604.1440 and pressure tested to the maximum expected surcharge head to assure water tightness before backfilling.
22. Whenever water mains must cross house sewers, storm sewers or sanitary sewers, the water main shall be laid at such an elevation that the invert of the water main is eighteen inches above the crown of the drain or sewer. This vertical separation must be maintained for that portion of the water main located within ten feet horizontally of any sewer or drain crossed. This must be measured as the normal distance from the water main to the drain or sewer. If it is impossible to obtain the proper vertical separation as described above or if it is necessary for the water main to pass under a sewer or drain, then the sewer must be constructed of water main type material. This construction must extend on each side of the crossing until the normal distance from the water main to the sewer or drain line is at least ten feet. In making such crossings, center a length of water main pipe over/under the sewer to be crossed so that the joints will be equidistant from the sewer and as remote therefrom as possible. Where a water main must cross under a sewer, a vertical separation of eighteen inches between the invert of the sewer and the crown of the water main shall be maintained, along with means to support the sewer line to prevent their settling and breaking the water main.
23. Valve vaults shall be adjusted with precast concrete adjusting rings to a maximum of 0'-8".
24. Hydrostatic tests - the contractor shall perform hydrostatic tests in accordance with Division IV, Section 41 of the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and applicable provisions of AWWA C-600 and C-605. The water mains shall maintain a 150 psi average for up to 4 hours during the test. The test pressure shall no drop more than 2 psi for the duration of the test. Allowable leakage shall be as set forth in the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition. The City water operator in charge or person authorized by the City water operator in charge shall be present during all testing. The contractor shall use a pressure gage supplied by the City for the test.
25. Disinfection of the water main - upon completion of the newly laid water mains, the water mains shall be disinfected in accordance with the American Water Works Association, procedure designation, AWWA C-651. Water shall be tested to assure that 50mg/l of CL2 is in disinfected water. The City operator in charge or

person authorized by the city shall perform sampling and processing of the test sample and test results. The cost of the water sampling and testing shall be borne by the city. Water must pass two consecutive days of sampling tests by a state approved lab.

26. Water valves and fire hydrants shall only be operated by United City of Yorkville Water Department personnel. Please contact the Yorkville Water Department at 630-553-4372.
27. The developer shall reimburse the City of Yorkville for the cost of water to fill and test new water mains and also for the cost of laboratory tests after chlorination. The water cost shall be at the bulk rate charged by the City of Yorkville at the time. The volume of water shall be calculated as the volume of two and one-half times the lengths and diameters of new water mains.
28. Services shall be equipped with corporation stop, curb stop and buffalo box. The buffalo box shall be set in the parkway, on the centerline of the property, approximately centered between the back of sidewalk and adjacent right of way line. Service trenches beneath or within two feet of proposed driveways, sidewalks, or other pavements shall be backfilled full-depth with aggregate. Depth of bury shall be 5-feet. No joints shall be allowed between the corporation stop and curb stop.
29. Buffalo boxes shall not be set directly in pavement. The top of the buffalo box shall be set 3-inches below the pavement grade and in an inspection frame, Neenah R-1973 or East Jordan 1570 frame and lid.
30. All t-head bolts and heavy hex nuts shall be ASTM F593 3045 stainless steel.