



# Water & Sewer Specifications Quick Guide

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## Water Installation

Watermains: 4" through 16" shall be cement lined ductile iron **Class 54** with "Tyton" gaskets.

Watermain Protective Wrap: All water mains and fittings shall be wrapped in a polyethylene wrapper according to the ductile iron research administration (DIPRA) guidelines.

Field "Loc" Gaskets: All push on joint connections before and after all fittings and valves shall be made with a "**Field Loc**" Gasket.

Fitting and Valve Restraints: Shall be made with "EBBA Iron Mega Lug" or "Romac Grip Ring" retainers.

Fittings: Shall be fusion-bonded epoxy lined (inside and out) ductile fittings manufactured solely in the U. S.

Valves: 4" inch through 16" shall be fusion-bonded epoxy lined resilient seated design with S. S. nuts and bolts and manufactured solely in the U.S.

Thrust Blocking: All fittings greater than 1/8 bends shall be blocked with precast concrete thrust blocks no less than 18 cubic feet.

Compaction/Backfill: Shall be in accordance with DIPRA specifications.

Service Line Brass: To include corporations, curb stops, and fittings shall be compression type "**Lead Free**" design manufactured by the following companies. Ford, Mueller and McDonald.

Service Lines: ¾" through 2" shall be HDPE "CTS" with 200 psi working pressure (DR9), shall be bedded in fire screened sand and covered with a minimum of 12 inches of compacted sand. Detector tape shall be placed in ditch at the depth of 4 feet below grade. (See DWG – W1)

Water Mains and Service Lines Bury Depth: All mains and service lines shall be buried at a depth of no less than 6 feet 6 inches (6'6"). This includes all service lines from the curb stop to the house service entrance. (See DWG – W1)

Curb Stop Boxes: Shall be 6 – 7 foot Erie-style boxes with **stainless steel** “36” long rods “only”. (See DWG –W1)

Pressure testing/chlorination: All water mains shall be pressure tested and chlorinated prior to acceptance or service initiation and shall conform to the AWWA Standards for each application. Pressure testing/chlorination whips are to be removed upon successful testing and prior to service initiation.

Pipe coupling 4” through 16”: Shall be made with fusion-bonded epoxy coated ductile solid sleeves with joint restraints, all manufactured in the U.S. only.

Pipe Installation, Handling and Backfilling Operations: Shall be in accordance with DIPRA Specifications. No exceptions shall be allowed and depth of bury shall not be less than 6’6” without express permission of the Superintendent.

Fire Hydrants: Shall be 7-foot depth of bury with red paint, S. S. fasteners and manufactured by the following manufacturers: Waterous & Eddy hydrants, and shall open “**left**”. Hydrants shall be 5 1/4" valve opening with one pumper connection and (2) 2 1/2" hose connections. All fire hydrants shall have thrust blocks installed.

Meters and Backflow Preventers:

Residential: Water meters 5/8” through 1” shall be Neptune meters (T-10 or Mach-10) with integrated R900 radio units or Badger E-series ultrasonic with cellular endpoint. Meters 1 1/2” through 4” shall be Badger E-series ultrasonic with brass body and cellular endpoint.

Commercial: Water meters 5/8” through 1” shall be Badger E-series ultrasonic with cellular endpoint. Meters 1 1/2” through 4” shall be Badger E-series ultrasonic with brass body and cellular endpoint. Meters larger than 4” shall be magnetic flow meters specified and approved by the Superintendent. Backflow preventers are required for all service lines. The size and type shall be specified by the Meter & Backflow Coordinator or the Superintendent, the manufacturer shall be “**Watt’s Regulator Company**” from 3/4” through 4”.

Pressure Reducing Valves: Shall be required at the service entrance for all customers with a service pressure of 100 PSI or greater.

Thermal Expansion: All internal hot water and boiler connections shall be fitted with a properly sized thermal expansion tank in order to prevent excessive pressure buildup within property or dwelling.

Protection from freezing: All customers are responsible to prevent service lines and meters as well as their appurtenances from freezing. Any damage cause by freezing shall be the responsibility of the customer.

## Sewer Installation

Sewer Pipe: Sewer Pipe shall be **SDR 35** push on gasketed pipe “only”

Slope: 4” inch SDR 35 minimum slope shall be  $\frac{1}{4}$ ” per linear foot

6” inch SDR 35 minimum slope shall be  $\frac{1}{8}$ ” per linear foot

Fittings: Shall be push on gasketed fittings for use on SDR 35 pipe. FERNCO clamp-on style and glue-on style fittings are not permitted.

Sewer Service Cleanout: All sewer connections shall be required to have a 6-inch sewer cleanout, installed at the property line. Said cleanout shall be installed per (DWG-1) and be fitted with a metal cleanout frame ASTM A 48 CL35B. The cleanout must be 6” pipe and reducing shall only be allowed on the customer side of the property line cleanout via a 6”x4” eccentric reducer as per DWG -1.

Grade Changes: Grade changes greater than  $\frac{1}{2}$ ” per linear foot shall only be approved by the Precinct Forman or the Superintendent.

Direction Changes: Gravity Sewer 8” or larger shall be made via manhole only. Grade and direction changes on 6” and 4” pipe shall not exceed 45° and if the sewer run is greater than 200 feet it shall require an additional cleanout. (DWG -1)

Manholes: Shall be precast concrete minimum 4 foot in diameter, shall be coated exterior with bitumastic coating. Shall have a minimum slope of  $\frac{1}{4}$ ” per linear foot through the manhole. Inverts shall be cored and be fitting the proper sized core sealed rubber gaskets. Inverts shall be constructed of Brick and Brick Trenched as per (DWG-2)

Inside Drop Inverts: Shall be fitted with inside connections and fittings as per (DWG-4)

Pump Stations Individual Services: Pump stations shall be model DH151 and for duplex or > shall be model DH152 manufactured by E-one Corporation. Said models are preferred manufacturers and the Precinct shall carry spare parts for these units. Contractors shall be allowed to install other manufactured and pre-engineered units but the contractor must notify the individual property owner that they are on their own with parts and warranty. In addition, if any system other than E-one is considered written acknowledgement by the property owner accepting the fact that they are solely responsible for their own system is required prior to acceptance.

Force Mains: Shall be HDPE DR 11 from 1.25” through 4” and shall be buried 6’6” in depth and should they be buried less than said depth they shall be insulated as per (DWG-3) and inspected prior to backfilling operations.

Bedding: All gravity sewer services shall be bed in 3/8" to 3/4" inch stone and shall be placed upon undisturbed soils suitable for said service pipe and launched to within 1/2" the diameter of the pipe being placed as per (DWG -3).

Manhole Frame & Covers: Shall be gray cast iron with H-25 loading manufactured by the **NEENAH** Founding Company and shall have a minimum 30: opening and all covers shall have gasketed cover with internal O-ring design and closed pick holes.

As Built Drawings: Contractors and or property owner shall provide the Precinct with a sketch of the sewer line showing depth of pipe and show swing ties of all fittings, cleanouts and grade changes and a copy of this information shall be given to the Precinct following project completion.

Connection Record Fee: Prior to backfilling operations, the contractor /property owner shall call the Precinct for final inspection and to insure Precinct specifications were adhered too. The homeowner shall be charged a \$40.00 connection record fee and a sketch of the connection shall be made by Precinct Staff and archived in our record books for future reference.

Notification: Contractor or property owner shall give the Precinct at least **48 Hour** notice prior to commencement of digging operations for all new sewer service connections. No weekend or holiday installations shall be allowed without the approval of the Foreman or Superintendent for any water or sewer service work unless said work is deemed an emergency.