

CITY OF PLATTEVILLE STANDARD SPECIFICATIONS FOR UNDERGROUND UTILITIES

September 22, 2015

Updated 01/04/2024

Watermain Materials

All materials to be manufactured in the USA.

Minimum size: 8" (unless otherwise stated by DPW)

Pipe – AWWA C900, Class 150, DR 18, PVC bell & spigot joints with rubber gaskets
Joints connecting pipes to fittings, valves, and hydrants shall be restrained to the required restrained length on each side of the fitting. The following shall be used:

- A. Use of wedge type restraining glands on mechanical joint pipe and fittings:
Ebaa Iron/Megalug Series 2000PV or approved equal.

Fittings:

Ductile Iron, full body fittings (as per AWWA C110) or compact fittings (as per AWWA C153), working pressure of 250 psi, and manufactured in the USA.

All field connections to existing water mains to be completed with mechanical joint solid sleeve or Romac Macro HP Couplings. Flexible connections ("blue sleeve") only allowed on a case-by-case basis.

Bedding and Backfill Materials:

Bedding and Initial Backfill: compacted CABC, sand, or fines as per Wisconsin Standard Specifications for Water and Sewer Construction.

Backfill, if under the travelled way, parking lot, sidewalk, etc.: ¾" to 1 ¼" CABC (road gravel) in lifts up to road section. Compact to 95% of maximum density, as per ASTM D-1557 (modified proctor).

Backfill, if not under travelled way: Natural backfill material. Compact to 90% of maximum density as per ASTM D-1557 (modified proctor).

Valves -

A. Manufactures:

- 1. Kennedy

B. Resilient Wedge Gate Valves: AWWA C509; ductile Iron

- 1. Resilient seats

2. Stem: Non-rising bronze stem
3. Operating Nut: 2-inch square; open counterclockwise
4. Ends: Mechanical joint connections (see pipe)
5. Coatings: AWWA C550; interior/exterior
6. Sizes 12-inch diameter and smaller: working pressure, 150 psig, tested to 300 psi.

Valve Box –

- A. Valve boxes to be Tyler/Union 6860 series or equal.
- B. Domestic cast iron, three-piece, screw type; #6 round base
- C. Cast iron lid, marked “Water.”
- D. Minimum bury depth of 5 feet**
- E. Maximum bury depth of 7 feet**
- F. Provide gate valve adapter by Adapter, Inc. or pre-approved equal.
<http://www.adaptorinc.com/>

Hydrants-

- A. Manufactures:
 1. Kennedy – Guardian
- B. Dry-barrel Break-away type: AWWA C502; cast-iron body, compression type valve.
 1. Bury Depth: As indicated on the drawings.
 2. Upper barrel section shall be a minimum.
 3. Inlet connection: 6 inches
 4. Valve opening: 5-1/4 inches diameter.
 5. Ends: Mechanical Joint (see pipe)
 6. Bolts and nuts: Corrosion resistant
 7. Coating: AWWA C550; interior
 8. Direction of Opening: Counterclockwise
 9. Operating Nut: Pentagon shape, 1 inch on each side
 10. Traffic flange with no-flow separation
- C. 3-way outlet style
 1. Outlets: Pumper, one 4 ½ inches and two 2 ½ inches. Threads to be national standard threads.
 2. Attach nozzle caps with heavy chains.
 3. Solid concrete blocking to virgin soil

Tracer wire –

- A. 10-gauge tracer wire per IAW Standard Specifications (Solid)
- B. Tracer wire access box installed at all hydrants: Valveco TWAB or pre-approved equal.

Services –

- A. Polyethylene Pipe: AWWA C901 and ASTM D3035, for 200 psig pressure rating:

Fittings: ASME B16.18, cast copper, or ASME B16.22, Wrought copper

1. Joints: Compression connection. Provide stainless steel insert.
2. 10-gauge tracer wire per IAW Standard Specifications Spliced and sealed with watermain tracer wire

- B. Copper Tubing: B88, Type K, soft annealed seamless copper

1. Fittings: ASME B16.18, cast copper, or ASME B16.22, Wrought copper
2. Joints: Compression connection only

- C. Corporation Stop:

1. A.Y. McDonald, Ball Style, Model 4701BQ (compression)

- D. Curb Stop

1. A.Y. McDonald, Minneapolis Pattern, Model 6104Q

- E. Curb Boxes and Covers

1. Cast iron body, screw type.
2. Tyler Union 6500 Series, box 100-F (30T, 21B, and #154 ext)
3. Arch pattern base.
4. Provide enlarged base for curb stops 2" or greater.
5. 2 ½" "Water Lid", with brass screw
6. **Minimum bury depth of 5 feet.**
7. **Maximum depth of 7feet**
8. When connections are made in the street, the curb box and curb stop shall be placed seven to seven- and one-half feet outside the property line towards the street whenever possible, and when made in an alley or a utility easement, the connection shall be placed twelve inches inside the easement closest to the structure and must not be located in a paved area.
9. A curb box and curb stop (shut off valve) for controlling the supply of water to consumers shall be placed on every service. Any multiple dwelling occupancy structures constructed within the area serviced by the Water Department shall have a curb stop and curb box for each unit.
10. Must be orientated in line with the service.
11. 1-inch minimum concrete paver block installed under curb stop to prevent tipping.
12. Stan pipe must be used during back filling and compacting to prevent tipping and offset joints.

- F. Service saddles

1. Required for all corporation stops.

2. All stainless steel
3. Cascade Waterworks
 1. Model CSC2 for PVC
 2. Model CS22 for DIP

Flushing and testing

- A. Only Platteville Water and Sewer personnel will open system valves to fill or flush new water system mains.
- B. Platteville Water and Sewer will take clean water sample and deliver to lab for Testing or make other arrangements with contractor. Lab will invoice contractor direct for each sample.

Sanitary Sewer Pipe and Fittings

Mainline Pipe: Plastic Pipe: ASTM D3034, Type PSM, SDR-35 Poly Vinyl Chloride (PVC) material; inside nominal diameter as per drawings, bell, and spigot style rubber ring sealed gasket joint.

- a. Fittings: PVC.
- b. Joints: ASTM F477, elastomeric gaskets.
- c. Markings: Each pipe shall be stamped or marked with its type and class and the manufacturer's name or mark.

Laterals (4" or smaller): Plastic Pipe: ASTM D1785, Schedule 40, Poly (Vinyl Chloride) (PVC) material; inside nominal diameter of 4 inches, unless noted otherwise on drawings, bell and spigot style solvent sealed joint ends.

- a. Fittings: ASTM D2466, PVC.
- b. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent cement.
- c. Markings: Each pipe shall be stamped or marked with its type and class and the manufacturer's name or mark.
- d. Install 10-gauge tracer wire per IAW Standard Specifications (Solid)
- e. Trace wire access box installed at all hydrants: Valveco TWAB or pre-approved equal.

Fittings: All enlargements or reduction in size of pipe to be:

- a. At a manhole
- b. If not at a manhole, a reducing fitting may be used as long as it is eccentric.

Manholes:

- A. Precast Risers: Reinforced precast concrete in accordance with ASTM C478. Inside diameter to be 48 inches (min.)
- B. Precast Bases: Reinforced precast bases in accordance with ASTM C478. Bases shall be minimum 6 inches thick and cast integral with first riser. Provide poured invert with smooth radius transitions. The flow channel shall be the same diameter as the larger adjoining sewers.
- C. Top Section: Reinforced precast top section in accordance with ASTM C478. The top section shall be an eccentric cone.
- D. Joints: Joint to be made watertight utilizing rubber ring gasket or butyl sealant. Rubber ring gasket to comply with ASTM C443. Butyl sealant to comply with ASTM C990 and AASHTO M-198.
- E. Flexible pipe Boot: Conform to ASTM C923. Provide flexible, watertight, gasketed seals for pipe entrance holes. Boots are to have stainless steel clamp and stainless-steel hardware. Pipe seal to be Press-seal PSX or pre-approved equal.
- F. Adjusting Rings: Provide injection molded recycled high-density polyethylene (HDPE) adjusting rings as manufactured by Ladtech, Inc. or pre-approved equal. HDPE to conform to ASTM D-4976. Minimum thickness to be 1.25 inches and maximum thickness to be 6

inches. Place an approved butyl sealant between rings to properly seal them.

- G. Sanitary manhole barrel section should be installed so ladder sections are in line.
- H. Drop manholes need to be installed with so to drop into the channel and not the bench and to have the top of the pipe cut in such a way to allow jetter camera to be placed inside.
- I. External Joint Seals: External joint seal shall be installed on each section joint of all sanitary manholes and for adjustment rings.
 - 1. External joint seal shall meet or exceed the requirements of ASTM-C877, type II. External joint seal shall be MacWrap, CretexWrap external Manhole Joint Seals, or pre-approved equal.
 - 2. External seals for castings and adjustment rings:
 - 1. If manhole is located outside of the street, an internal/external seal is to be used, Adaptor, Inc. or approved equal.
 - 2. If manhole is in a street, an internal seal may be used, Cretex or approved equal.

Frames and Covers:

- A. Frames and covers to be Neenah Foundry Co. Model No. R-1916-c with non-rocking, self-sealing, bolt-down lid or R-1550 with non-rocking, self-sealing, type "B" lid with sealed pick holes or pre-approved equal.
- B. East Jordan Iron Works may be substituted with permission of engineer.

Bedding and Backfill Materials:

Bedding and Initial Backfill: compacted ¾" to 1 ½" clean/washed stone (open graded, no fines) as per Wisconsin Standard Specifications for Water and Sewer Construction.

Backfill, if under the travelled way, parking lot, sidewalk, etc.: ¾" to 1 ¼" CABC (road gravel) in lifts up to road section. Compact to 95% of maximum density, as per ASTM D-1557 (modified proctor).

Backfill, if not under travelled way: Natural backfill material. Compact to 90% of maximum density as per ASTM D-1557 (modified proctor).

Storm Sewer Pipe and Structures:

Pipe:

- A. Location of Pipe:

- a. Pipe located under street, parking lot, sidewalk, or high traffic area to be RCP.
 - b. Pipe not located under street, parking, sidewalk, or high traffic area to be HDPE.
- B. Reinforced Concrete Pipe: ASTM C-76 Class III mesh reinforcement; inside nominal diameter as per drawings, bell and spigot ends.
2. Fittings: Reinforced concrete.
 3. Joints: ASTM C-443 rubber compression gasket.
 4. Markings: Each pipe shall be stamped or marked with its type and class and the manufacturer's name or mark
 5. Joint Ties: Provide joint ties for the last three sections of pipe in addition to the end wall section at all discharge or intake areas.
- B. Plastic Pipe: AASHTO M-294, Corrugated High Density Polyethylene (HDPE) Drainage Pipe, smooth interior, inside nominal diameter as per drawings.
1. Fittings: Polyethylene.
 2. Joints: AASHTO M-294.
 3. Markings: Each pipe shall be stamped or marked with its type and class and the manufacturer's name or mark

Structures:

- A. Cast-in-place storm sewer structures will not be permitted without pre-approved written permission from the Owner unless specifically identified on the plans.
- B. Precast Risers: Reinforced precast concrete in accordance with ASTM C-478. Inside diameter to be as designated on plans.
- C. Precast Bases: Reinforced precast concrete bases in accordance with ASTM C-478. Bases shall be minimum 6 inches thick and cast integral with the first riser. Inside diameter to be as designated on plans.
- D. Precast Top Slab: Reinforced precast concrete top slab in accordance with ASTM C-478. Top slab to a minimum of 6 inches thick for 4-foot diameter structures and a minimum of 8 inches thick for 5, 6, and 7 foot diameter structures. Opens to be eccentrically located in the top slab.
- E. Joints: Joints to be made watertight utilizing rubber ring gasket or butyl sealant. Rubber ring gasket to comply with ASTM C-443. Butyl sealant to comply with ASTM C-990 and AASHTO M-198
- F. Adjusting Rings: Provide injection molded recycled high-density polyethylene (HDPE) adjusting rings as manufactured by Ladtech, Inc. or approved equal. HDPE to conform to ASTM D-4976. Inside diameter or

dimensions to be as designated on plans. Place an approved butyl sealant between rings to properly seal them. Wrap silt fence or other approved erosion control fabric around prior to backfilling.

Frames and Covers:

- A. Frames and covers to be manufactured by Neenah Foundry Company or approved equal and as per plans. Castings to conform to ASTM A48, Class 30B Cast iron construction. East Jordan Iron Works may be substituted with permission of engineer.
- B. Lids shall be of uniform quality, free from blow holes, porosity, hard spots, shrinkage defects, cracks or other serious defects.
- C. Lid: Machined flat bearing surface, sealed pick holes, traffic rated (unless otherwise noted), non-rocking, and self-sealing neoprene o-ring gasket.

Bedding and Backfill Materials:

Bedding and Initial Backfill: compacted $\frac{3}{4}$ " to $1\frac{1}{2}$ " clean/washed stone (open graded, no fines) as per Wisconsin Standard Specifications for Water and Sewer Construction.

Backfill, if under the travelled way, parking lot, sidewalk, etc.: $\frac{3}{4}$ " to $1\frac{1}{4}$ " CABC (road gravel) in lifts up to road section. Compact to 95% of maximum density, as per ASTM D-1557 (modified proctor).

Backfill, if not under travelled way: Natural backfill material. Compact to 90% of maximum density as per ASTM D-1557 (modified proctor).