



**Western Virginia Regional Design and Construction Standards
2024 Update – Summary of Changes**

The following is a summary of the changes included in the 2024 Update to the Western Virginia Regional Design and Construction Standards. It should be noted that this documented is intended only to provide a general overview of changes, and does not comprehensively list every change included in the update.

General

- Within the Design Standards, Construction Specifications, and Detail Drawings, approved product listings have been removed. Approved products have been compiled into a separate Approved Products List, which can be updated independently of the other standards. Modifications of standards, specifications, and details to remove references to specific products have not been individually listed in this summary of changes.
- References to current version of various standards from AWWA, ASTM, EJCDC, etc. have been updated.
- The Request for Waiver, Modification, or Field Change in the front of the standards has the following sentences added to the bottom: “This Waiver is project specific and only applies to this project. Submit to Director of Engineering”.

Design Standards – Water

- *DSW-1: Design Standards for Water Systems*
 - 2.1.C. Service line connections to pipes larger than 12” diameter are only allowed with the approval of the participating utility.
 - 2.3 Water System Design – This entire section has been updated.
 - 2.3.F Fire Flow Requirements
 - Specific fire flow rates have been removed. The standard now defers to the code of the applicable jurisdiction or the jurisdictional Fire Marshal for determining fire flow rates.
 - 2.6. System Looping and Dead-End Mains
 - Language added to clarify the intent of system looping to improve water quality and/or system reliability, and to require consultation with the Participating Utility to determine acceptable looping configurations.
- *DSW-2: Design Standards for Water Storage Tanks*
 - This was previously a subsection of DSW-1, but has now been separated into its own Design Standard.
 - 1.1 B.4.A. Removed the use of a cage from tank ladders and requires a fall prevention system that complies with OSHA regulations.
- *DSW-3: Design Standards for Water Pump Stations*
 - This was previously a subsection of DSW-1, but has now been separated into its own Design Standard.

Our Mission Is Clear

Design Standards – Sewer

- *The minimum size allowed for sewer laterals is 6". 4" will no longer be accepted.*
- **DSS-1: Design Standards for Sanitary Sewer Systems**
 - 2.7.F.6: Clarifies that a sampling manhole is required for non-residential users rather than may be required.
 - 2.7 E.1. Connections to existing manholes should not be made through a MH seam.
 - 2.10.C. Replace Air Relief Valve with Combination Air Valve.
- **DSS-2: Sanitary Sewer Lift Station Design Standards**
 - 5.1.A Plug Valves: Requires valves 8" and larger to include geared actuators.
 - 6.1.D: Requires plug valves instead of gate valves on force mains just outside of lift stations
 - 7.1.N: Within lift station, requires "LED lighting suitable for humid commercial installations" for general illumination instead of metal halide.
 - 11.1.H: Item 3. Dimensions of Storage Facility. The formula has been corrected. Note that Table 2 does not exist and is not in the standards.

Construction Specifications

- **CS-1: General Water and Sewer Specifications**
 - 2.1.H: Bedding requirements are referenced to the standard detail drawings rather than the pipe manufacturer's writing installation instructions.
 - 2.2 Separation of Water Mains and Sanitary Sewers
 - Revisions have been made to this section for consistency with the current Virginia Waterworks Regulations.
 - 2.3 Care and Restoration of Property
 - Language has been added to this section requiring video documentation existing conditions at construction sites prior to mobilization. Specific requirements for the documentation have been provided, including but not limited to submittal and approval by the Participating Utility prior to any construction activity.
 - 2.5 Record Documents
 - Additional detailed requirements for the production, maintenance, and submittal of record documents have been provided.
- **CS-2: Water Distribution Piping**
 - 1.2, 2.1.A.2: Revises applicable standard for PVC pipe based on ANSI/AWWA updates.
 - 1.2, 2.1.A.4, 2.1.G.1: Revises minimum pressure class for PVCO pipe to Pressure Class 305.
 - 2.1.B: Clarifies lining requirements for DIP in accordance with ANSI/AWWA standards.
 - 2.1.E.2: Bedding requirements for PVC pipe are referenced to the standard detail drawings rather than the pipe manufacturer's writing installation instructions.
 - 2.1.F.3: Added strap type saddle as an option for tapping PE pipe.
 - 2.1.J.2: Added working pressure to requirements for butterfly valves.
 - 2.1.K.2: Revises pressure requirements for fire hydrants to include a minimum working pressure and test pressure.
 - 2.1.K.4: Revises allowable restraint methods for fire hydrant assemblies (depending on pressure).
 - 2.1.N.2, 2.1.O.2: Requires all meter setters to be equipped with a dual check valve.
 - 2.1.P: Increased minimum pressure rating for PE water service tubing to 250 psi.
 - 3.1.B.10. Replace with all non-metallic pipe to all pipe. Locator wire will be required on all pipe in water systems.
 - 3.1.C Installation of Valves, Air Relief Assemblies and Blow-Off Chambers
 - Revisions have been made to this section for consistency with the current Virginia Waterworks Regulations.
 - 3.3 Disinfection of Water Mains
 - Section has been revised to defer to current AWWA disinfection standards instead of listing specific requirements. The revised requirement requires the Contractor to develop a disinfection and testing plan per the AWWA standard and submit to the Participating Utility for approval.
- **CS-3: Sanitary Sewer Collection Piping**

- 3.6.E: Requires treatment of groundwater removed from excavations per ESC requirements prior to discharge.
- 3.8.C. Remove “or AASHTO H-20 load rate HDPE grade rings”. HDPE grade rings are not allowed.
- **CS-4: Sanitary Sewer Closed Circuit Television (CCTV) Inspection**
 - 1.1 Description: Requires a CCTV inspection to be performed by the Contractor for all newly installed public sanitary sewers. Defers to the Contract Documents for other situations in which CCTV inspection is required.
 - 1.3.A: Modifies submittal requirements to allow for modern formatting and submittal via various digital means (not just as a DVD).
 - 2.1.D: Modifies inspection vehicle requirements in accordance with current standard practice.
 - 3.2.K: Modifies requirements for on-screen data to be provided at the beginning of each CCTV inspection video.
 - 3.4.D: Allows for submittal via various digital means (not just as a DVD).
 - 3.5: Corrective Action Requirements: Section has been removed from CCTV specification. Corrective actions for defects discovered during CCTV inspection are defined in the applicable pipe installation specification.
- **CS-5 Clearing and Grubbing**
 - 3.1.C. Consideration should be given to Time Of Year Restrictions (TOYR) for the removal of trees with regards to bat habitat.
- **CS-7: Stream and/or Highway Crossings**
 - 2.1.E Add “if required by the plans” to the 1st sentence. This is in reference to Grout injection for Horizontal Jack and Bore
 - 3.2.A: Requires casing end seals for plugging ends of casing pipes.
- **CS-8 Horizontal Directional Drilling (HDD) Methodology**
 - 3.1.F. Locator wire shall be installed with all pipe.

Water Detail Drawings

- *The Details (W-1 to W-8) have been updated and modified.*
- *The modifications include*
 - A requirement has been added to Note 1 that saddles “shall be specifically sized for the type of pipe.”
 - A note has been modified to clarify the intent to keep meters out of sidewalks.
 - A note has been added to provide requirements specific to the City of Salem.
 - Notes 5 through 8 have been added to provide additional requirements for the installation.
 - Note regarding service piping material has been removed.
 - Note saying to use a 2” setter for all 1½” meters.
 - A requirement for a recessed radio read pad has been added to vault cover detail.
- **W-7 Commercial Meter Vault**
 - Note 8 has been modified to require that filter fabric be placed between stone bedding and subgrade rather than between stone bedding and vault.
 - Note 9 has been added to prohibit use of this detail in the City of Salem.
 - Note 10 has been added to require a 2” setter for all meters 2” and smaller, with adapters for smaller meters.
 - Pipe support material has been modified from epoxy-coated steel to stainless steel.
 - A note has been added to submit actual design to participating utility for approval.
- **W-7A Salem Commercial Meter Vault**
 - New detail added for commercial meter vaults to be installed in the City of Salem.
- **W-8 Fire Service Vault for Private Hydrant**
 - This detail no longer exists. Refer to W-7
- **W-9 Water Line Valve & Vault**
 - Note 2 has been added to prohibit use of this detail in the City of Salem.
 - Concrete Valve Vaults will now only be required for 12” and larger pipe and for installations over 5’ deep.
- **W-9A Salem Water Line Valve Box**

- New detail added for valves to be installed in the City of Salem.
- Screw boxes are now required for all pipe less than 12" diameter and for depths less than 5' deep.
- *W-14 Main Line – Typical Main Line - Pressure Reducing Valve Assembly*
 - Note 8 has been modified to require that filter fabric be placed between stone bedding and subgrade rather than between stone bedding and vault.
 - Note 9 has been added to clarify requirements for meter installation relative to PRV.
 - Pipe support material has been modified from epoxy-coated steel to stainless steel.
 - Note 10 has been added to require a hydraulic analysis to size meters.
 - A note has been added to require a recessed radio read pad in the access hatch.
- *W-16 Vault Frame and Cover*
 - Note 5 has been added – No Paving Adjustment Rings Allowed. This refers to the cast/ductile iron paving rings that sit in the frame and the cover rests on.
- *W-17 Fire Hydrant Assembly*
 - Notes 5 and 8 and the detail drawing have been revised to clarify restraint requirements for normal and high pressure applications.
 - Note 7 has been modified to reference other details for tracer wire requirements.
 - The concrete pad that surrounds the Valve Box Lid has been removed.
- *W-19 Minimum Thrust Restraint of Pipe Joints Design Lengths – This detail has been updated with additional sizes of pipes.*
- *W-21 Tapping Sleeve and Valve*
 - AWWA reference for flange has been removed.
 - Note 5 has been added to require ductile iron if the pressure is greater than 150 psi.
- *W-24 Water Service Abandonment Detail has been added*

Sewer Detail Drawings

- *S-1 4' Standard Manhole for Pipe 15" or Smaller (for Depths up to 15 Feet)*
 - References to various ASTM standards have been removed.
 - Use of exterior coatings and joint/chimney seals have been clarified to be required "where indicated in the design drawings."
 - Note 4 regarding Flat Top manholes has been modified.
 - The note requiring 6' minimum diameter when depth exceeds 15' has been removed.
 - A note has been added allowing a larger than 4' diameter manhole to transition back to a 4' manhole after the base is set.
 - A note has been added allowing a bend just outside of the manhole on steep slopes – with participating utility approval.
- *S-2 Straddle Manhole*
 - References to various ASTM standards have been removed.
- *S-3 Inside Drop Manhole*
 - References to various ASTM standards have been removed.
 - The note stating that inside drop is only allowed on manholes 12' and deeper has been removed.
- *S-4 Manhole Frame*
 - Detail has been retitled for clarity in conjunction with Details S-5 and S-5a. Detail S-4 is for all manhole frames, while Details S-5 and S-5a are for Standard and Locking manhole covers, respectively. All sewer manholes are to be watertight (gasketed).
 - Note 1 has been removed. HDPE Adjustment Rings are not allowed.
 - Frame height requirements have been modified.
- *S-5 Standard Manhole Cover*
 - Detail has been retitled for clarity in conjunction with Details S-4 and S-5a.
 - The City of Salem will not have the WWA Logo. They will simply have "Sanitary Sewer"
- *S-5A Locking Manhole Cover*
 - Detail has been added for clarity in conjunction with Details S-4 and S-5.
 - The City of Salem will not have the WWA Logo. They will simply have "Sanitary Sewer"
- *S-6 Sanitary Sewer Lateral*

- Certain material requirements in Note 2 have been removed.
- Note 13 has been added to prohibit reductions of diameter along the sewer lateral flow path when connecting lateral to main and to prohibit the use of rubber reducers.
- 4" laterals are no longer accepted. All laterals shall be 6" from the property line to the main line.
- The cleanout cap shall be brass.
- *S-6A Sanitary Sewer Lateral Abandonment – This detail has been added*
- *S-7 Double Lateral Combined 6" by Two 4" Laterals*
 - 4" laterals are no longer accepted. All laterals shall be 6" from the property line to the main line
 - Certain material requirements in Note 2 have been removed.
- *S-8 Force Main to Gravity Lateral Connection*
 - This detail is not longer allowed – Use S-6 Detail.
- *S-9 Force Main Flushing Assembly*
 - For box and lid, references to Detail W-1 have been removed.
 - A 2" Gate Valve and box have been added to this detail
- *S-10 Pressure Lateral Assembly*
 - For the box and lid, references to Detail W-1 have been removed.
 - A ball valve has been added on the public side of the flushing assembly, and to the vertical stack.
 - The diameter of the flushing connection has been changed to 2", and the Type F adapter and cap material have been changed to brass.
- *S-12 Manhole Vent – Adjacent*
 - A note has been added to require epoxy coating on the inside of the vent pipe.
 - A note has been added to paint the vent pipe.
- *S-14 Automatic Air/Vacuum Release Assembly for Use on Sewer Force Main*
 - *The name of this detail has changed to Combination Air Valve Assembly for use on sewer force main.*
 - The requirement for a gate valve between the corporation stop and the air valve has been removed. A single corporation stop is still required.
- *S-17 Grease Interceptor*
 - Note 1 has been added to provide requirements for design submittal.
 - Traffic loading requirements have been consolidated in Note 10.
 - Note 11 has been added requiring a sampling port on the discharge.

General Detail Drawings

- *G-4 Tracer Wire*
 - Note 1 requires tracer wire installation for all new water and sewer and pipe installation, including service lines. The only exceptions are gravity sewers between manholes and gravity sewer services.
 - Subsequent notes and the detail drawings have been substantially re-written/modified to update the requirements to match current best practices.
- *G-9 Concrete Encased Pipe*
 - Note 2 requires that any joints or fittings within the concrete encasement be restrained.
- *G-10 Anchor Block*
 - The distances between anchors has been modified.
- *G-11 Bedding and Backfill Outside of Paved Areas*
 - References to manufacturer's criteria/recommendation for bedding requirements have been removed.
 - References to applicable OSHA standards for excavations have been updated.
- *G-12 Bedding and Backfill Under Pavement and in Right-of-Way*
 - References to manufacturer's criteria/recommendation for bedding requirements have been removed.
 - References to applicable OSHA standards for excavations have been updated.
 - Requires backfill of entire ditch with crusher run from top of bedding to bottom of surface treatment.

- G-13 HDPE to Other Pipe Transition Detail has been added.