

## 25. Water House Connections (WHC).

### a. General Requirements.

- 1) The requirements for designing WHCs include determining the WHC type (i.e. individual or double connection, private site utility system (on-site), or right of way connection), the location of the WHC, the location and type of meter setting (i.e. outside with single or double meter settings or inside meters) and the size for the WHC(s).
- 2) Water meters 1-1/2-inch to 12-inch in size are considered large meters. Contact WSSC to determine the location for all large meters, i.e. inside or outside the dwelling/building. Also, see the requirements for WSSC water meters in The Plumbing Code.
- 3) Show the WSSC permit numbers for the WHCs on the drawings for each lot on the plan view at the location of the WHC, WSSC will provide the permit information.

### b. Types of WHCs.

#### 1) Individual Connections.

- a) For all inside meter settings, use individual connections.
- b) For outside meter settings, when approved by WSSC.

(1) For meter sizes 1-1/2-inch and larger, use individual connections.

(2) For meter size 1-inch and smaller try to design the connections as double connections, see requirements below for double connections for outside meter settings.

#### 2) Double Connections for Outside Meter Settings.

- a) Where individual connections have been specified or approved by the WSSC, provide all residential dwellings or buildings which require a 1-inch or smaller meter with double outside meter settings, see Standard Details W/5.15 and W/5.15a. Exceptions include situations where there are an odd number of WHCs.

(1) Do not use double connections for inside meter settings.

- b) Double connections shall be designed such that the water service for each dwelling or building is hydraulically equivalent to providing each dwelling or building with an individual WHC. The WHC between the water main and the double meter setting shall be sized accordingly.

- c) Double WHCs between the water main and the double meter setting are typically 2-inch in diameter and smaller, see Standard Details W/5.15 and W/5.15a.

- d) Multi-unit arrangements such as "Piggy Back", "Back to Back" or other cluster development arrangements are not entitled to a WHC per unit.

#### 3) Private site utility system (on-site) system connections.

- a) Private site utility system (on-site) connections are required for water service to private property having a large water demand. (i.e., commercial, industrial, schools, apartments, etc.)



- b) Private site utility system (on-site) connections are typically 3-inch in diameter and larger.
- 4) Right of way connections.
  - a) Right of way WHCs are permitted for individual connections using inside meter settings only, unless otherwise directed by the WSSC.
  - b) Right of way connections are typically 2-inch in diameter and smaller.
- c. Size of WHCs.**
  - 1) Indicate the size of the WHCs in the General Notes.
  - 2) WHCs for residential services are generally 2-inch in diameter and smaller with a minimum size of 1-inch. Verify the size of WHCs required with WSSC.
  - 3) Size all other types of WHCs for the type of development being served, see The Plumbing Code. The WHC must conform to the requirements set forth by WSSC.
- d. Allowable Pipe Material for WHCs.**
  - 1) For WHCs 2-inch in diameter and smaller, design the pipe material to be copper in accordance with the Specifications.
  - 2) For WHCs 3-inch in diameter and larger, design the pipe material as DIP in accordance with the Specifications.
- e. Horizontal WHC Alignment.**
  - 1) WHCs 2-inch and smaller.
    - a) Locate WHCs to readily serve the existing/proposed dwelling/building in a cost-effective manner. Specify the horizontal location of the WHC based on the guidelines in this Section.
    - b) Show the WHCs from the mainline pipe connecting to front of the property, dwelling, or building and within the roadway right of way. See WSSC Standard Details W/5.10 and W/5.11 for installation of water house connections with inside meters and Standard Details W/5.13 and W/5.14 for installation of outside meters. If the design will not allow the WHC to be installed in the front of the property, submit a request for a variance with justification for changing the WHC location requirements.
    - c) Design WHCs to be 5'-0" clear horizontally from permanent structures and other utility appurtenances (such as storm drain inlets, street light poles, transformers, etc.) and adjacent parallel piping with the exception of Sewer House Connections (SHC) as indicated below.
    - d) When both WHCs and SHCs are required, locate both house connections according to WSSC Standard Detail M/18.0 and the clearance requirements under Part Three, Section 3 (Pipeline Crossings and Clearances) and as follows:
      - (1) For individual WHCs, design WHC and SHC to be in the same trench.



- (2) For double WHCs, locate the WHC at the property line between the two properties to be served, and locate the SHC in a separate trench according to the design guidelines in Part Two, Section 27, (Sewer House Connections).
- e) Provide the following information on the drawings for 2-inch and smaller WHCs.
- (1) Show the WHCs for outside meters, from the mainline water pipeline to the limits shown in Standard Details W/5.6, W/5.7, W/5.8, W/5.9, W/5.15 and W/5.15a. For WHCs with inside meters, show the WHC to the property line or as stated otherwise in the General Notes. The WHCs locations shall be as follows:
    - (a) Individual WHCs. Locate individual WHCs for inside or outside meter settings, where practical, ten (10) feet downgrade from the center of the property being served and if possible, no closer than ten (10) feet from the property line.
    - (b) Double WHCs. Locate WHCs for double outside meter settings at the property line between the two properties being served by the connection. When designing double WHCs, take into consideration the location of telephone, cable, and electric appurtenances, which maybe located at the property line between lots within the Public Utility Easement (PUE) or Public Improvement Easement (PIE).
    - (c) Right of Way WHCs. Design right of way connections for inside meter settings with the curb stop being a minimum of two (2) feet from the corporation stop at the main.
  - 2) WHCs 3-inch and larger.
    - a) The location of WHCs for private site utility system (on-site) systems is based on the design of the private site utility system (on-site) system.
    - b) The design of WHCs 3-inch and larger will be typical to a small diameter mainline water pipeline, see Part One for the design requirements for water pipelines and include thrust restraint as required, see Part Three, Section 27, (Thrust Restraint Design for Buried Piping).
    - c) Coordinate the location for private site utility system (on-site) services with the WSSC.
    - d) Provide the following information on the drawings for WHCs 3-inch and larger:
      - (1) Connect the WHCs to the water pipeline in accordance with Standard Detail W/5.12.
      - (2) For thrust restraint, see Part Three, Section 27, (Thrust Restraint Design for Buried Piping) and Standard Detail W/5.12.
  - 3) Terminating WHCs.
    - a) WHCs 2-inch and smaller, with Inside Meter Settings.
      - (1) WHCs for inside meter settings shall terminate at the property line with a curb stop, see Standard Details W/5.10 and W/5.11. See requirements below for locating curb stops:
        - (a) The curb stop must not be located within a curb or gutter section.
        - (b) Avoid locating the curb stop within a sidewalk, driveway, or any other paved surface.



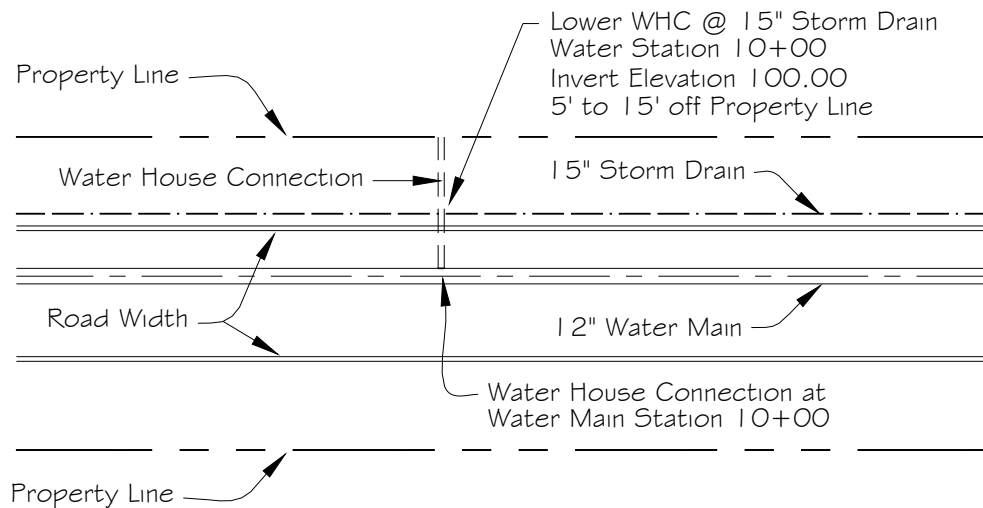
- (2) On tertiary streets, if the right of way limit ends at the edge of the roadway paving or at the curb or gutter lines, extend the WHCs to the limit of the Public Utility Easement (PUE) or Public Improvement Easement (PIE). In this case, provide the WSSC with a right of way for the WHC.
- b) For WHCs 2-inch and smaller, with Outside Meter Settings.
    - (1) Terminate WHCs for outside meter settings as indicated in Standard Details W/5.6, W/5.7, W/5.8, W/5.9, W/5.15 and W/5.15a.
    - (2) On tertiary streets, if the right of way limit ends at the edge of the roadway paving or at the curb or gutter lines, extend the WHCs to the limit of the Public Utility Easement (PUE) or Public Improvement Easement (PIE). In this case, provide the WSSC with a right of way for the WHC and the outside meter setting and show the location of the meter setting on the drawings.
  - c) For WHCs 3-inch and larger. Extend the WHC to the property line or as shown in Standard Detail W/5.12, and terminate with a plug or cap.

**f. Vertical WHC Alignment.**

- 1) Depth of cover for WHCs.
  - a) DIP WHCs. Provide a minimum of four (4) feet of cover over the WHC. See requirements for designing DIP water pipelines under Part One, Section 11 (Vertical Alignment – Profiles).
  - b) Copper Pipe WHC. Provide a minimum of three and one half (3-1/2) feet of cover over the WHC, unless otherwise noted on the drawings, see the Standard Details and Specifications.
- 2) Vertical Alignment of the WHCs.
  - a) DIP WHC. Design the DIP WHC to be laid level and provide invert elevations on the drawings at the property line, unless a profile of the alignment is provided, see Standard Detail W/5.12 for connection and layout details. If the vertical alignment cannot be laid level or if the WHCs crosses other utilities, drainage ditches or changes in grade, provide a profile on the drawings, see requirements under Part One, Section 11 (Vertical Alignment – Profiles).
  - b) Copper Pipe WHC. Design the copper WHC level with the top of the water mainline pipeline, except at the corporation stop and as follows:
    - (1) At the property line, provide four (4) feet of cover over the WHC; see Standard Details W/5.10, W/5.11, W/5.13 and W/5.14.
    - (2) When the water pipeline is designed with over four (4) feet of cover, special considerations (i.e., raising the WHC and providing elevations on the drawings), may be required so that the WHC piping is not installed at the same elevation as the water pipeline.
    - (3) If the roadway layout has ditches or storm drains, special design information is required on the drawings. Include a note in the General Notes referencing Standard Detail W/5.11, W/5.13 or W/5.14 as applicable. Provide WHC lowering information for the crossing of the proposed utilities and ditches, see “Copper pipe WHC lowering at storm drains and other utility crossings”, in this section.



- (4) If site grading is to be performed following installation of the WHCs and the contractor will be unable to install the WHCs with the minimum cover as noted above, provide invert elevations of the WHCs.
- (5) If the WHC cannot be installed within the depth requirements noted above for reasons of utility crossings or a deep design for the water pipe, provide invert elevations for the WHC. Give the invert elevations at the mainline water pipeline, at the curb stop or plug and at every vertical grade change on the WHC.
- (6) Copper pipe WHC lowering at storm drains, proposed or existing ditches and other utility crossings. When the minimum cover requirements noted above for copper WHCs cannot be maintained, the following information is required on the drawings:
- Show the station of the WHC at the mainline water pipe, the name of the crossing utility or ditches and the distance or span of the WHC that requires lowering as referenced from the property line or other survey controls.
  - Show the invert elevation of the WHC at the utility crossing, see Sketch "J" and Part Three, Section 3 (Pipeline Crossings and Clearances).



SKETCH "J"

WHC Lowering at Storm Drains and Other Utility Crossings

**g. Location of Outside Meters.**

- For 2-inch and smaller meters.
  - Design WHCs for 2-inch and smaller meters to accommodate outside meter settings, unless otherwise approved by WSSC.



- b) Avoid locating the outside meter setting within sidewalks, driveways, or any other paved surfaces. The preferred location of the outside meter setting is adjacent to a sidewalk in a level grass area within the road right of way and outside of traffic bearing areas, see Standard Details W/5.10, W/5.11, W/5.13, and W/5.14.
- c) The outside meter settings shown in Standard Details W/5.6, W/5.7, W/5.8, W/5.9, W/5.15 and W/5.15a are for non-traffic bearing areas only. If the design requires a meter setting to be located in a traffic bearing area, WSSC approval of the location is required, and special design details are also required on the drawings for a traffic bearing meter setting.
- d) Locate outside meters within the roadway right of way according to Standard Details W/5.13, and W/5.14, and the following:
  - (1) For closed paving sections (with curb and gutter), the outside meter setting shall be centered in the grass area between the back of the sidewalk and the property line as shown in Standard Detail W/5.13. If there is no grass area between the sidewalk and the property line, then locate the meter setting in the sidewalk and provide a note of the plans to indicate the location.
  - (3) For open paving sections (without curb and gutter), locate the outside meter setting as shown in Standard Detail W/5.14.
  - (4) On open or closed section tertiary streets, if the right of way limit ends at the edge of the roadway paving or at the curb or gutter lines, locate the meter setting outside of traffic bearing areas at a location approved by the WSSC. Provide the WSSC with a right of way for the WHC and the outside meter setting.
  - (5) Provide WSSC with a right of way if the meter setting must be located outside of the road right of way on private property. In such cases, the outside meter settings can be located within Public Improvement Easements (PIEs).
  - (6) Provide 5'-0" minimum horizontal clearance between the meter setting and all permanent structures such as storm drain inlets, street light poles, other utility appurtenances and pipelines except when WHC is installed in a combined trench with the SHC.
  - (7) Provide 10'-0" minimum horizontal clearance between the outside meter setting and trees.
- e) Provide the following meter location information on the drawings for 2-inch and smaller meters:
  - (1) Show the location of the outside meter setting for each lot on the drawings as an approximate 1/8-inch diameter circle with the letter "M" inside of the circle as shown in Standard Detail M/1.0 and indicate the elevation for each meter frame and cover as follows:
    - (a) Existing areas or areas outside of the limits of grading, design the meter frame and cover to be flush with the existing grade.
    - (c) Proposed or future grading areas, design the elevation of the meter frame and cover to be flush with the finished grade.
  - (2) For outside meter settings, include a General Note on the drawings which specifies the meter setting location(s), see Standard Details W/5.13 and W/5.14.



- (3) If the meter setting is located other than as shown in the Standard Details, provide the centerline outside meter setting stakeout information on the drawings.
- 2) For 3-inch and larger meters.
  - a) Coordinate the location of 3-inch and larger meters with the WSSC (inside or outside the dwelling/building), see the requirements for WSSC water meters in The Plumbing Code.
  - (1) For Outside Meters, locate the meter in a vault, as shown in Standard Details W/5.0, W/5.0a, W5.0b, W/5.0c, W/5.0d, W/5.1, W/5.1a, W/5.1b and W/5.1c. Locate outside meters within an accessible grass area within the public right of way. The meters shall not be located in low areas, roadways, sidewalks, driveways or any other paved areas. If a location meeting these criteria is not available within the public right of way, then the meter shall be located within an accessible grass area on property within a right of way. The vault shall be located so the meter can be made readily accessible. The location shall be approved by the WSSC.
    - (a) Provide WSSC with a right of way if the meter setting must be located outside of the road right of way on private property. In such cases, the outside meter settings can be located within Public Improvement Easements (PIEs).
    - (b) Provide 5'-0" minimum horizontal clearance between the meter vault and all permanent structures such as storm drain inlets, street light poles, and other utility appurtenances.
    - (c) Provide 10'-0" minimum horizontal clearance between the outside meter setting and trees.
    - (d) For outside FM meters, provide a fire hydrant on the by-pass piping, see Standard Detail W/5.0a. Connection to mainline pipeline shall be minimum 8-inch diameter.

#### **h. Connection of the WHC to the Mainline Pipeline.**

- 1) For WHCs 3-inch and larger, see Standard Detail W/5.12.
- 2) For WHCs 2-inch and smaller, design the WHCs to connect to a 16-inch diameter or smaller mainline.
  - a) Variance may be given on the mainline water size requirement for 24-inch and smaller diameter, exceptions require WSSC approval. For mainline water larger than 24-inch diameter WHCs is not allowed.
  - b) Design the connection with a corporation stop at the mainline pipeline and the following requirements:
    - (1) Maintain a minimum distance of 1'-6" between WHC taps on the mainline pipeline.
    - (2) Use of service saddles in accordance with the specifications is required on the mainline pipeline as follows:
      - (a) If the mainline pipeline is 4-inch and smaller DIP.
      - (b) If the mainline pipeline is 6-inch through 12-inch DIP with WHCs larger than 1-inch diameter.



(c) For all PVC mainline pipelines.

**i. Insulated Joints on WHCs.**

- 1) Insulating Joints on WHCs 2-inch and smaller in accordance with Standard Detail C/3.5 will be required for the following conditions:
  - a) Existing CIP and DIP with no polyethylene encasement.
  - b) Existing DIP with bonded joints.
  - c) Existing DIP with special exterior coatings.
- 2) Insulating Joints on WHCs 3-inch and larger in accordance with Standard Detail C/3.1 will be required for the following conditions:
  - a) Existing DIP with bonded joints.
  - b) Existing DIP with special exterior coatings.

