

Portland Water District



Water and Sewer Construction Specifications and Procedures

Effective Date: 11/1/2020



Table of Contents

Section I: General Information	5
Section II: Work Associated with Water Main Construction	9
<u>General</u>	10
<u>Design Criteria</u>	11
<u>Water Line Construction</u>	12
Duties of the Contractor	12
Installation of Temporary Water Systems	13
Excavation	19
Pipe Laying	19
Backfilling	22
Filling and Testing	24
Disinfection	25
Section III: Water Main Materials Specifications	30
Section IV: Water Main Installation Documents	53
Certificate of Title and Project Acceptance	54
Main Extension Agreement	56
Three Party Agreement	59
Section V: Work Associated with Sewer Construction	65
General	66
Design Criteria	66
Standard Specifications and Details	66
Sewers and Drains	66
Manholes/Precast Concrete Structures	71
Section VI: Standard Details and Sketches	77

Portland Water District Specification Revision Guide

Date	Section	Revision
4/27/2020	I, II, and III	Minor clarifications
4/27/2020	I D. 5e	Minimum horizontal separation between water and sewer: 10'
4/27/2020	I D. 5h	Minimum horizontal separation between water and street trees: 10'
4/27/2020	II 4.10	Valve box 6" minimum overlap between top and bottom sections
4/27/2020	II 5(var)	Added clay check dam requirements for steep slope trenches

SECTION I: General Information



A. PLANS AND SPECIFICATIONS

1. SUBMITTALS:

An Applicant proposing to construct a water and/or sewerage system for public use and dedication to the Portland Water District shall submit one (1) set of plans and specifications to Asset Management and Planning Department, 225 Douglass Street, Portland ME 04104. The plans shall show plan and profile of the proposed water or sewer main including standard details, pump station plans and details, right-of-way boundaries, other utilities, limits of paving, ledge profile or test borings and any other physical or topographical features relevant to the installation and maintenance of the main or pump station. Where available, control shall be based on the Maine State Plane Coordinate System NAD 1983 West.

All drawings, specifications and Engineer's reports submitted for approval shall be prepared by, or under the supervision of, a registered Professional Engineer or others legally qualified to practice in the State of Maine. A cover letter shall be submitted with each set of plans and specifications giving a proposed description of work.

2. REVIEW:

The District's goal is to review plans within thirty (30) days after receipt. An Ability to Serve letter will be issued to the Applicant within this period. Comments will be returned to the Consultant. If the Applicant does not respond to the District's comments within sixty (60) days, the plans shall be considered inactive. In such cases, a new submission shall be required. All plans will be stamped upon receipt and reviewed in order of receipt.

3. APPROVAL:

Following review and approval, plans shall be stamped "Approved" and a letter of approval shall be issued to the developer or their agent. Approvals are valid for a period of eighteen (18) months from date of issue. If construction is not in progress at the end of that period, District approval is void. Plans and specifications may have to be submitted as a new project, if deemed necessary by the District, and must conform to the District's most current standards and specifications.

4. FINAL PLANS FOR CONSTRUCTION:

Prior to construction, the Applicant shall submit two paper sets depicting approved water and or sewer main/pump station configuration and an electronic version in AutoCad format of the final Planning Board signed plans. No construction shall begin or inspector assigned until these plans are received by the District.

B. PROJECT ACCEPTANCE

1. WATER

Upon completion the utilities must be dedicated to the District. A Certificate of Title and Project Acceptance form will be executed after successful completion of a "Final" inspection. Upon final inspection and approval of the facilities and satisfaction of all District requirements, the District will accept the facilities in writing. The developer will be responsible for any repairs as a result of construction or defects for a period of one (1) year from date of acceptance. Any charges incurred during that year shall be paid by the Developer. A District inspector shall be present for all repair work.

2. WASTEWATER

Final acceptance will be in accordance with existing Contractual arrangements with the respective municipality. All systems must be installed in accordance with District standard details, specifications,

submitted design information and design specifications. 1 set of 24" x 36" as-built paper copy, an electronic version in PDF format, and the native drawing file in either .dxf or .dwg format shall be provided prior to acceptance.

C. EASEMENTS

Easements shall be required for all water mains, sewer lines and appurtenances except where installed within the public way of the State or the Municipality. Such easements shall not be less than forty (40) feet in width. Combined water and sewer easements shall be not less than forty (40) feet in width with both pipes ten (10) feet from the edges of the easement. The District reserves the right to require additional easement width if construction and maintenance activities require it. All easements shall include the right of ingress and egress as well as the right to install and maintain water and sewer lines. If necessary, easements shall extend to adjacent properties for orderly extensions of service.

All appurtenances (blow-offs, hydrants, etc.), if not within the pipeline easement limits, shall be provided with an easement ten (10) feet by ten (10) feet centered around the appurtenance.

No buildings or permanent structures shall be constructed within the easement, except if the easement includes a roadway. In a roadway easement, pavement and other utilities will be allowed. Any utility crossings shall be generally perpendicular and shall maintain a vertical separation as noted below in Section D.

No trees, shrubs, structures, fences or obstacles shall be placed within an easement that would render the easement inaccessible by equipment. Any person who constructs a structure within the utility easement shall be liable for the cost of removal and/or any damage to the utility.

D. SEPARATION OF WATER AND OTHER UTILITIES

1. There shall be no physical connection between a drinking water supply line and a sewer or appurtenance.
2. Water lines shall be laid at least ten (10) feet horizontally from a sewer or sewer manhole whenever possible; the distance measured from edge to edge. When local conditions prevent a horizontal separation of ten (10) feet, a waiver must be requested for approval by PWD.
3. Water lines crossing sewers shall be laid to provide a separation of at least twelve (12) inches between the bottom of the water line and the top of the sewer, whenever possible. When local conditions prevent this vertical separation, the following construction shall be used:
 - a. Sewers passing over or under water lines shall be constructed of AWWA approved Ductile Iron water pipe.
 - b. Water lines passing under sewers shall, in addition, be protected by the following:
 - i. A vertical separation of at least (12) inches between the bottom of the sewer and the top of the water line.
 - ii. Adequate structural support for the sewers to prevent excessive deflection of the joints and the settling on and breaking of the water line.
 - iii. One full length of waterline be centered at the point of the crossing so that the joints shall be equidistant and as far as possible from the sewer.
4. The following minimum separations from water mains shall be observed at all times unless otherwise directed by PWD personnel:

Horizontal Separation

- a) Sanitary Sewers – refer to requirements in this section noted above
- b) Storm drains – 3’ face to face for mains; 1’ at contact points for CBs and DMHs
- c) Gas mains – 6’ face to face
- d) Underground electric and telephone – 6’ face to face
- e) Utility Poles – 6’ face to face

Vertical Separation

- a) Sanitary sewers – 12” over and under
- b) Storm drains – 6” over and under
- c) All other crossings – 12” minimum

5. The following minimum separations from water services shall be observed at all times unless otherwise directed by PWD personnel:

Horizontal Separation

- a) Storm drains – 3’ face to face for mains; 2’ at contact points for CBs and DMHs
- b) Gas– 6’ face to face
- c) Underground electric and telephone – 6’ face to face
- d) Property lines – 10’
- e) Sanitary sewer – 10’
- f) Curb stops for multiple services – 18”
- g) Utility Poles – 6’
- h) Street Trees – 10’

6. The following minimum separations from hydrants shall be observed at all times unless otherwise directed by PWD personnel:

Horizontal Separation

- a) Gas mains – 3’ face to face for hydrant branches
- b) Underground electric and telephone – 3’ behind hydrant (not allowed over hydrant branch)