

**2011 Errata to the
City of Portland
Sewer and Drainage Facilities Design Manual
June 2007**

Introduction

The City of Portland Sewer and Drainage Facilities Design Manual (SDFDM) provides information to assist City staff, Consultants, designers and others who are responsible for planning, designing, constructing, reviewing and approving sewer and drainage facilities within the City of Portland. The SDFDM is administered by the City's Bureau of Environmental Services (BES) who periodically updates the SDFDM between major revision efforts to correct obvious errors in the Manual, to incorporate policy changes that affect Manual content and to update reference material that has changed since the Manual's adoption.

Approved Changes

BES adopts the following modifications to the SDFDM to reflect new policy and programmatic efforts:

1. Incorporate definitions found in the existing Sanitary System Connection Administrative Rules (ENB 4-17) <http://www.portlandonline.com/auditor/index.cfm?c=28044&a=154965> document and the related program materials.
2. Incorporate changes to the Public Works Permit Program, including updates to permitting authorities to allow for simple sewer extension projects (generally shorter than 100 feet) to qualify for an expedited permit process.
3. Revise reference to "Standard Plan" found throughout the Manual to "Standard Plans and Details". Provide a table for user's to identify and cross-reference the old Standard Plans to the new Standard Details and Drawings.
4. Eliminate Appendix H Rules for Sewer Connection 2006 (ENB 4-17) and incorporate the technical content found in Appendix H dealing with lateral sewers and connection to the public sewer system into the body of the SDFDM..
5. Incorporate technical standards and text statements to reflect new policies relating to sewer connection and extension work:
 - o Establish City maintenance responsibility for the portion of a sewer lateral that is under a Green Street Facility;
 - o Prohibition of spot repairs on the publicly maintained portion of sewer service laterals. The following conventions will be used to denote proposed modifications to the current version of the SDDM. ~~Strike through~~ will denote text removals and underlining will denote text adds. Text in Arial font is SDFDM text, where Times Roman font text is descriptive.

1 Add the following new definitions Section 1.13 Glossary

Building Sewer means the part of the horizontal piping of a drainage system that extends from the end of the building drain and that receives the discharge of the building drain and conveys it to a public sewer, private sewer, private sewage disposal system, or other point of disposal.

Common Private Sewer System (also called Party Sewer) means the portion of a building sewer that:

1. Is not owned by the City of Portland
2. Is used for draining more than one building under different ownership; and
3. Conveys the discharge to a sewer service lateral, public sewer, private sewage disposal system, or other point of disposal.

Connection means the permitted joining of sanitary waste and drainage disposal pipes from property development to a public sewer system and the subsequent disconnection and/or removal of all other waste disposal systems such as cesspools or septic systems.

Nonconforming Sewer means a private sanitary sewer that is:

1. Located on public or private property that is not on the same property as the structure or structures being served by the sewer; and
2. Not located within a recorded sewer easement or subject to a recorded covenant for easement regarding use of the sewer meeting the standards specified in administrative rules.

Private Sewer Service Lateral means a sewer pipe that:

1. Has been designated as “private” by the Chief Engineer, BES, or has not been accepted as a public improvement by the Chief Engineer; BES, and
2. Serves as a conveyance system for individual or common private sewer systems.

Public Right of Way means the area within the confines of a dedicated public street, an easement owned by the City, or other area dedicated for public use for streets or public utility facilities.

Public Sewer means all pipes, manholes, and other appurtenances:

1. Constructed by the City’s Bureau of Environmental Services, or
2. Permitted under a public works permit and accepted by the City’s Bureau of Environmental Services, and designed for the collection and transport of stormwater, wastewater and sewage received from sewer service laterals and common private sewer systems.
3. That have been assumed by the City for maintenance responsibility pursuant to 17.32.055.

Public Sewer Easement means a grant of the right by a property owner to the City to use land for placement and maintenance of public sewer facilities.

Public Sewer Service Lateral means a conduit extending from a public sewer to a private plumbing system of a building, buildings or property. “Public Sewer Service Lateral” is the portion of a conduit that:

1. Is located in a public right of way;
2. Extends from a public sewer or manhole to the curb line, or projected future curb line, if no curb exists;
3. Receives the discharge from a building sewer or common private sewer system; and
4. Is not a common private sewer system.
5. Is City operated and maintained

Public Sewer System means the entire sewage collection and treatment system, including but not limited to, all City laterals, pipes, conduits, outfalls, pumps, treatment facilities, physical and biological processes, and any other components involved in the collection, detention, transportation, treatment, reuse, and disposal of stormwater, wastewater and sludge.

Public Works Inquiry means an initial meeting with Portland’s public works bureaus to share information and develop a clear understanding of the proposed project and its public works and infrastructure requirements.

Repair means work performed to patch or replace main line sewers or sewer laterals.

Standard Detail means a drawing or figure that guides the assembly of standard parts and non-critical structures. Standard Details are not considered to be “engineered work”.

Standard Drawing means a drawing or figure that details “engineered work” that includes critical structural components. A Professional Engineer has signed and stamped a master copy of each Standard Drawing.

Wye or Wye-head fitting means a common connection junction between a public sewer and more than one sewer service lateral, building sewer, or common private sewer system.

2. Incorporate changes to the Public Works Permit Process

Page 2-6 –“Public Works Permits”. Revise section to read as follows:

2.5 Public Works Permits

2.5.1 Public Works Permit Application Requirements

Title 17 of the Portland City Code requires all persons wishing to construct or alter any public sewer to make an application to BES and obtain a Public Works Permit (City Code Chapter 17.32 Sewer Regulations).

BES manages and oversees the Public Works Permit Program. Staff review proposals to modify or connect to a public sewer or implement drainage improvements and issue permits with conditions for completing this work.

BES has updated their rules regarding sewer connection to provide expedited review and approval processes for completing simple sewer extension and connection work and modification of nonconforming sewers to meet current standards. This resulted in the revision of the Short Sewer Extension Permit process to address the increased scope of work required to address nonconforming sewers. This new Permit process is now referenced as the Simplified Permit process.

The City has three possible permit paths (i.e. Levels 1, 2 or 3) for anyone wishing to connect to a public sewer or modify a sewer to serve development. The City will review connection applications and determine which of the three Permit processes apply to the proposed or corrective work.

A Public Works Inquiry is required to gain approval for a Permit under these rules

2.5.2 Level 1 Sewer Connection Permits

The type of work ~~is that~~ allowed under a Sewer Connection Permit typically involves connection of a private sewer lateral to either a public sewer or an existing public sewer lateral.

A Level 1 Sewer Connection Permit will be considered for issuance when the applicant

meets all of the applicable conditions or criteria found in Table 2.1.

Any preexisting non-conforming sewer connections that require repair must seek independent connections to a City sewer following the Nonconforming Sewer Conversion Program Administrative Rules

2.5.3 Level 2 Simplified Permit in Public ROW/Easements (formerly Short Sewer Extension Permit)

Simplified Permits are issued to address the modifications and extension of an existing City mainline sewer to serve new development (<100 feet) and to resolve nonconforming sewer situations (<200 feet).

A Level 2 Simplified Permit for work in a Public ROW/Easement will be considered for issuance when the applicant meets all applicable conditions and criteria listed in Table 2.1. Projects that fail to meet any of these criteria will be required to follow the Public Works Permit process or to request a Design Variance from the Standards of the City's Sewer and Drainage Facilities Design Manual.

Before receiving a Simplified Permit, the Permittee/Consultant must submit all the applicable items requested by the assigned BES Project Manager. Items include:

- A complete site plan indicating pre- and post- construction conditions
- Sewer pipe profiles and elevations
- Pipe inverts elevations at manholes
- Up-to-date utility information for the area of work must be shown on the plan and profile
- Pipe sizes, lengths and fitting types
- Pipe material, bedding and slope
- Street grades
- All existing and proposed sewer connections
- Label streets and the location of all easements
- Erosions control methods

After receipt, review and acknowledgment by the Project Manager (PM), a Simple Permit is issued and the applicant can schedule a meeting with the Inspection staff.

2.5.3 Level 3 Public Works Permit Process (no change to text – provided for context)

The Level 3 Permit process is generally initiated by the ~~applicant~~ permittee/Consultant; and the City provides guidance and oversight to assure the project conforms to the current Standards. The process is complete when approval is received. Generally, the process follows the eight steps described below.

Step 1 Pre-design Meeting. Permittee/Consultant initiates a pre-design meeting with BES staff when the permit involves ONLY sewer construction. At this meeting the assigned BES PM will deliver information outlining the requirements for completing the Permit process. If the project involves a Public Street Improvement then the Office of Transportation, Development Service Division will schedule the meeting.

Step 2 Prepare and Submit Application - Permittee/Consultant submits application to BES for review. Include plans, calculations, Operation and Maintenance (O&M)

information and any requested supporting documents.

Step 3 BES Review – BES Development Services staff will review the plans and incorporate their review comments as well as from other BES groups. The BES PM will return a check set to the applicant.

Step 4 Plan Revision - Permittee/Consultant reviews the check set, and revises and resubmits the plans to address the review comments, including a written response to each review comment. Steps 3 and 4 are repeated until the plans receive approval. After receiving approval, the Permittee/Consultant prepares and submits a set of stamped and signed mylars as well as an electronic copy of the project plans.

Step 5 Permit Approval - The BES PM, after receiving the signed mylars, prepares an internal signature routing package and circulates the documents for approval from the BES Chief Engineer, ~~BES~~. BES will review the cost information provided by the applicant, determine the project permit fee, and confirm any bond requirements.

Step 6 Required Submittals - Before receiving a Public Works Permit, the Permittee/Consultant must submit all the applicable items requested by the PM. A partial list of these items is found in the following section following this paragraph. After receipt and acknowledgment by the PM, a Public Works Permit is issued and the ~~applicant~~ permittee/consultant can schedule a pre-construction meeting with the BES Construction staff.

Before receiving a BES Public Works Permit, the applicant must submit or provide proof to BES of the following listed items.

- Provide a final, complete plan set of mylars stamped and signed by the Consultant
- Pay-in-full all estimated plan review and construction inspection fees
- Submit proof of a Performance Guarantee equal to 100 percent of the estimated construction cost
- Provide proof of Insurance
- Obtain and provide evidence for any required permanent or temporary easements, for both on-site and off-site easements
- Secure all required agency and regulatory permits and approvals (e.g. BDS, Division of State Lands (DSL), and Army Corps of Engineers)
- Submit electronic copy of the final plan set

Step 7 Pre-construction Meeting and Submittals – PM schedules a pre-construction meeting with key project staff. Before this meeting, assigned construction manager (CM) may request project submittal information. Construction may commence following the successful completion of this meeting and satisfactory review of all the submitted materials.

Step 8 Project Completion - When project construction is complete (i.e., the CM has completed the Final Inspection), the PM will perform a final project accounting to determine whether there are fees owed by the applicant or whether there will be a refund. Fees will be determined on actual time charged, per City Code Chapter 17.32.120 Deposit Required and 17.32.150 Fees for Public Sewer Improvement Permits.

“Table 2.1” summarizes the applicable permit criteria that an applicant wishing to connect to or work on a sewer must meet to obtain one of three permit types issued by the City. Each corresponding level of Permit requires a more involved application and design process to receive approval to perform the desired work.

All new text – not underlined for clarity

Table 2.1 Applicable Criteria for Permitting Construction Work on Public Sewer located in the ROW

Applicable Permit Criteria	Permit Types Available for Working on City Sewer		
	Sewer Connection Permit Level I	Simplified Permit Level II	Public Works Permit Level III
<p>Level 1</p> <ul style="list-style-type: none"> • Sewer service lateral repairs in the public right of way • All connections to a public sewer main and sewer service laterals • Relocations of existing sewer service laterals (from curb to the main) • Construction and/or extension of sewer service laterals to private property for future use • Repair of private lines in the public right-of-way • Repair of a non-conforming sewer in the public right-of-way. • Manholes are less than 48” diameter 	✓		
<p>Level 2</p> <ul style="list-style-type: none"> • No sewer main more than 18 feet • No manhole more than 12 feet deep • Does not require a City approved traffic control plan • Does not require any manhole greater than 48 inches diameter • Work does not cross any major utility • Does not involve work on a brick manhole • No Engineering required to design an extension from any City sewer • Does not require extension of a brick sewer or a clay sewer constructed before 2010 • No relocation of any utility • No conflict with the standard proximity rules pertaining to utilities • No Excavation near a structure or retaining wall that requires geotechnical design • No excavation adjacent to a water body or involving groundwater • No work outside of the public right-of-way • No extension longer than 100 feet to serve a development project. • No extension longer than 200 feet to serve a non-conforming sewer. • No extension longer than 200 feet to resolve a failing on-site system. • No sewers greater than 12 inches diameter 		✓	
<p>Level 3</p> <ul style="list-style-type: none"> • Any Level 2 Criteria not satisfied. • Construct/modify public sewer and appurtenances • Construct any manhole greater than 48” diameter • Construct/modify any public storm facility 			✓

3. Revise all references to “Standard Plans” to read “Standard Details and Drawings”.

Page 2-5 – “Use of Standard Plans” Correct section to read as follows:

Section 2.4.3 Use of Standard Details and Drawings:

The Standard Construction Specifications contain Standard ~~Plans~~ Details and Drawings depicting many facilities and appurtenances for sewer construction. Include relevant Standard Details, Drawings, and special non-standard Details on separate plan sheet(s) in the Construction documents; doing so will provide a complete archive set of project-specific plans and related details in effect at the time the project was designed. When referencing either special, or Standard Details in a project plan set, reference the assigned Detail number as listed in the Standard Construction Specifications.

The following table summarizes revisions made to the existing Standard Details & Drawings. Please note this new information when encountering old references.

Entire table is new – no underlining is provided to enhance clarity

Existing References		Revised References		
Old Std. Plan #	Title	New Std. Detail #	New Std. Drawing #	New Title (if changed)
4-01	Typical Trench Sections - Backfill & Surfacing	P-100		
4-02	Pipe Bedding	P-101		
4-04	Sewer Pipe Anchor Walls	P-102		
4-05	Sewer Pipe Concrete Encasement	P-103		
N/A	Metal Slope Anchors for Sewer Pipe	P-104		
Fig 1 (4-14)			P-140	MSPCP Top Slab "A"
Fig 2 (4-08-5)			P-141	MSPCP Top Slab "B"
Fig 3 (4-08-5)			P-142	MSPCP Top Slab "C"
Fig 4 (4-08-5)			P-143	MSPCP Top Slab "D"
Fig 5 (4-08-5)			P-144	MSPCP Top Slab "E" (Reducing Slab for 60" dia.)
Fig 6 (4-08-5)			P-145	MSPCP Top Slab "E" (Reducing Slab for 72"-144")
Fig 7 (4-08-4)	Large Precast Concrete Manhole - Long Base Section Reinf.		P-146	MSPCP Longitudinal Section (60" dia. - 96" dia.)
Fig 8 (4-08-4)	Large Precast Concrete Manhole - Long Base Section Reinf.		P-147	MSPCP Longitudinal Section (108" dia. - 144" dia.)
Fig 9			P-148	MSPCP Top Slabs "A" through "D"
Fig 10			P-149	MSPCP Top Slabs "E" and Base Slab

Existing References		Revised References		
4-06-1 4-06-3 4-08-1 4-08-2	Precast Concrete MH, Precast Conc. MH w/ Precast Base, Large Precast Concrete MH, Large Precast Concrete MH – Types		P-150	MSPCP Precast Concrete Manhole
4-08-3	Large Precast Concrete MH - Bases		P-151	Manhole Cast-in-Place Base & Precast Base Slab
4-14	Top Slab for Precast Manhole		P-152	Top Slabs for Precast Concrete Manholes
4-10	Precast Sump	P-160		
4-11	Sedimentation Manhole with Hood (Rev 6/30/08)	P-161		
4-11-1	Sedimentation Manhole with Baffle	P-162		
4-11-2	Sedimentation Manhole with Elbow	P-163		
4-12	Sampling Manhole	P-164		
4-16	Step for Precast Manhole	P-168		
4-20-1	Manhole Frame - 6" Depth	P-171		
4-20-2	Manhole Frame - 10" Depth	P-172		
4-20-3	36 Inch Manhole Frame	P-173		
4-21	Manhole Riser Ring	P-174		
4-21-1	36 Inch Manhole Riser Ring	P-175		
4-22	Manhole Cover	P-176		
4-22-1	36 Inch Manhole Cover	P-177		
4-22-2	36 Inch Manhole Double Cover	P-178		
4-23	Tamperproof Manhole Frame/Cover 6" Depth	P-179		
4-24	Tamperproof Manhole Frame/Cover 10" Depth	P-180		
4-25	Watertight Manhole Frame/Cover 6" Depth	P-181		
4-26	Watertight Manhole Frame/Cover 10" Depth	P-182		
4-30	Concrete Inlet	P-200		
4-30-1	Adjust Concrete Inlet	P-201		
4-30-2	Inlet Location At Curb Return	P-202		
4-31-1	Concrete Double Inlet - End to End	P-203		
4-31-2	Concrete Double Inlet	P-204		
4-32-1	Curb Inlet	P-206		
4-32-2	Combination Curb Inlet	P-207		
4-32-3	Curb/Gutter Inlet	P-208		
4-32-4	Double Curb/Gutter Inlet	P-209		
4-33-1	Concrete Field Inlet	P-211		
4-33-2	48" Precast Field Inlet	P-212		
4-34	Inlet Frame	P-213		
4-35	Double Inlet Frame	P-214		
4-35-1	Double Inlet Frame-End to End	P-215		
4-36	Inlet Grating	P-216		
4-37	Inlet Grating with Bicycle Protection	P-217		
4-38	Longitudinal Inlet Grating with Bicycle Protection	P-218		
4-39	Inlet Grating	P-219		
4-03-1	PVC Deep Connection Riser	P-250		

	Existing References		Revised References	
4-27-2	Piped Inside Drop Connection for Manholes	P-252		
4-27-3	Piped Inside Drop Connection for Manholes 12/21/07	P-253		
4-40	Rain Drain to Gutter	P-256		
4-41-1	Sanitary Sewer Lateral Cleanout	P-257		
4-41-2	Sanitary Sewer Terminal Cleanout	P-258		
4-42	Sanitary Cleanout Frame Foundation	P-259		
4-42-1	Sanitary Cleanout Frame & Cover	P-260		
4-43	Sanitary Cleanout Frame & Cover - Landscape	P-261		

4. Eliminate Appendix H – Rules for sewer Connection

Page vi – “Table of Contents” - Delete the following:

Appendix H: Rules for Sewer Connection, City of Portland, Bureau of Environmental Services

Page 1-10- “Companion Documents and Internet Links” - Delete the following:

RULES FOR SEWER CONNECTION

City of Portland

~~This document outlines the general rules and requirements for obtaining a BES sewer connection permit for completing private sewer construction, repair and connection to the City’s sewer system.~~

~~See Appendix H for a copy of the Rules of Sewer Connection.~~

~~Current copies are available from:~~

~~BES – Development Engineering Section
1120 SW 5th Avenue, Room 1000
Portland, Oregon 97204-1972~~

Page 3-2 – “Gravity Systems versus Pumped Systems” - Delete the following

~~Additional information regarding service requirements is found in the current edition of the “Rules for Sewer Connection.” (See Appendix H.) A copy is also available from BES Development Services Division (Refer to Chapter 1, Useful Contacts within the City).~~

*Item 7 - Page 4-4 – “No Curved Sewer Requiring Pulled Joints and the Use of Blind Bends”.
Revise this section to read as follows:*

4.3.1 No Curved Sewers Requiring Pulled Joints and the Use of Blind Bends

BES does not allow the design or construction of horizontal curved sewer pipe of any size that utilize “pulled” joints or longitudinal pipe bending to achieve a curved alignment. The City will only accept the construction of a deflected pipe alignment that uses a blind bend to

locate an angle point between two manholes. Maintenance considerations, avoidance of other substructures and the need to reserve space in the ROW for other utilities are primary factors that determine when deflected sewer alignments are preferred. Construct any sewer adjacent to a deflected sewer on a parallel alignment.

If an alignment between two manholes creates a minor deviation (plus or minus (+/-) 1 1/2 feet) from the “standard sewer location” (Refer to Chapter 3, Standard Sewer Locations), place the sewer on a straight horizontal alignment. Unless, this alignment results in a significant impediment to sewer construction activities, maintenance or other utilities in the street area, only then install a blind bend.

Locate no more than one blind bend between manholes. The horizontal sewer alignment may deviate from the “standard sewer location” referenced to the street centerline. A departure of +/- 3 feet from the standard location is acceptable. Construct a manhole when the alignment falls outside of these limits. All blind bends shall be factory-fabricated.

The design and as-built records must accurately show the distance from manholes to the blind bend; the distance from the sewer centerline at the angle point to the defined street centerline or to the property line; and all horizontal curve information along the defined street centerline.

The maximum allowed deflection angle for a blind bend is a function of the pipe size and maintenance considerations. Table 4.2 defines the maximum allowed horizontal deflection angle for typical sewer pipe sizes including laterals.

Table 4.2 Maximum Horizontal Blind Bend Deflection Angle for Select Pipe Sizes

NOMINAL PIPE DIAMETER, INCHES	MAXIMUM DEFLECTION ANGLE, DEGREES
Sewer Service Lateral	22 1/2° to change direction (1)
Main Line Sewers	
Less than 8	None allowed
8	11 1/4°
10 & 12	22 1/2°
Greater than 12	45° (Use two sixteenth bends (22-1/2 -degrees in series) unless otherwise authorized)

Note 1 - Refer to Standard Plan P-262 Sewer Service Lateral to determine the number of bends allowed within right-of-way.

Item 13 - Page 9-1 – “Appendices” - Delete the following

~~Appendix H: Rules for Sewer Connection, City of Portland, Bureau of Environmental Services~~

5 Incorporate text to reflect new policy positions

“Cleanouts- When and Where They Can be Used”. Revise section to read as follows:

4.7 Cleanouts - When and Where They Can be Used

A cleanout provides another entry point for City personnel to access a sewer for maintenance or inspection purposes; they also assist City staff when locating sewer utilities in a ROW. A cleanout may be used in lieu of a manhole however BES must approve the use of any cleanout. Any cleanout located in a pedestrian way shall have a cover with a non-slip surface. Refer to COP Standard Construction Specification 308.2.07 Utility Access Doors – Slip Resistance for the specific criteria.

There are two cleanout design standards: (1) Lateral Cleanout (Standard Plan 4-41-1) and (2) Terminal Cleanout (Standard Plan 4-41-2). Each has different application requirements.

Place cleanouts behind the curb within the planting strip or furnishing zone or at the property line on the property side of the sidewalk. Where possible locate a cleanout to avoid conflict with tree roots, driveway aprons, water meters and hydrants, existing or proposed Green Street Facilities or other existing utilities.

4.7.1 Lateral Cleanout

The City may require a cleanout on a sewer lateral when circumstances justify its use. Any of the following circumstances would be justification for the City to require a lateral cleanout within the ROW.

Where the:

- Slope of the lateral is less than the minimum required,
- Maintenance Bureau regularly cleans a problematic lateral,
- Lateral between the service connection and the sewer main is under a major street/highway,
- Sewer main is under a light rail/trolley track,
- Lateral is adjacent to a major utility that limits using a conventional open-cut excavation method.
- Approved wye connection is located in the right-of-way, install a cleanout only on the straight through wye branch.
- Private lateral runs parallel to a curb and the distance to the building sewer connection is less than 100 feet otherwise install a manhole.

A lateral cleanout shall be located in the ROW downstream from the private sewer connection to the public sewer lateral. Typically, place the cleanout in front of or behind the curb in a paved or landscape area. However, under certain circumstances the cleanout could be located behind the sidewalk at the property-line. Surface restoration requirements are project-specific.

4.7.2 Terminal Cleanout

A terminal cleanout occurs at the end of a sewer mainline or a dead-end of a sewer where there is no plan for any future extension or service connection. It is usually located in the ROW of an improved street although this is not a requirement.

An exception occurs on a multi-phased permit project. In this case, the terminal cleanout can serve as a temporary sewer access and termination point for the beginning the next phase of development. When the next phase of development begins, remove the cleanout

and begin the new sewer from its location. Never use cleanouts when a manhole is specified or required.

Installation of a terminal cleanout is limited to an 8-inch sewer. The maximum distance from the cleanout to the nearest downstream manhole is limited to 100 feet maximum for grades less than 5% and 150 feet for grades greater than 5%. Whenever conditions exceed these distances or slopes install a manhole.

Item 9 - Page 4-36 –“Sewer System Repairs”. Insert this new Section.

4.12 Sewer System Repairs

As the owner and operator of the City municipal sewer system BES has overall responsibility for approving the location, design, construction and repair of all public sewer assets in the right-of-way including sewer service laterals. This authority requires that BES establish standards and methods to guide the repair of these assets to assure their operation and performance. This responsibility differs from maintenance responsibility for specific sewer assets in the sewer system (i.e. sewer service laterals). Refer to Section 5.5.6 for information about the limits and responsibility for maintaining sewer laterals.

The following criteria apply to any planned repair work to sewer laterals within the right-of-way.

- Spot repairs will not be approved on any portion of a sewer lateral located in a right-of-way. Replace the entire portion of the lateral for which an entity has maintenance responsibility.
- Any repair or connection to a new system within the public right-of-way (property line to curb) will require that the repaired or replacement pipe be of the same material as the downstream pipe.

Item 10 - Page 5-11 –“Design Criteria for Sewer Service Laterals”. Revise this section for new policy and remove old Sewer Connection Rules reference to read as follows:

5.5 Design Criteria for Public Sewer Service Laterals

Install a public sewer service lateral (SL) to provide sanitary service to each platted private property. The lateral shall be located within the ROW or an easement as follows:

- For a service lateral from a public sewer main in the ROW, extend the service lateral to the property line.
- For a service lateral from a public sewer main in an easement, provide a tee or wye only.
- For a service lateral through a private easement to a lot, extend the private service lateral in the private easement to the property line of the lot being served.

For a site with more than one building, plumbing regulations typically may allow a separate service lateral to serve multiple buildings on the same platted tax lot. For multiple tax lots with multiple buildings, the designer must obtain approval from the Bureau of Development Services before providing service with one service lateral, regardless if the buildings are individually owned or if they have different owners.

There are many external factors that can influence a property owner’s decision to construct

a common private sewer or multiple building sewers for multifamily, commercial or Industrial property. Give special attention to the service line capacity that drains to a Common Private Sewer or and any lateral that serves multi-family residential, commercial and industrial development. Also, give special attention if future possible or planned land divisions may result in separately owned buildings on different tax lots on a common private sewer.

5.5.1 Pipe Size and Material

The minimum lateral size is 6" for new sewers in the public ROW. When tapping or connecting to an existing sewer BES prefers a 6" lateral but under certain circumstances will approve a 4" lateral. Pipe material influences the minimum pipe size available for installation.

BES allows a 4-inch service lateral pipe when connecting a 4-inch building sewer from a one- or two-family dwelling to an existing sewer main. In a public sewer easement, the minimum diameter of a service lateral is 4 inches.

<p><i>Sewer Service Laterals within ROW</i> Materials: Concrete, PVC and HDPE <u>and Ductile Iron</u> Minimum pipe sizes: 4 and 6 inches. (See Appendix H)</p>

Laterals larger than 6-inches may be required ~~necessary~~ to serve commercial, industrial or multi-family developments. Regardless of their size, design each lateral following the same procedures and criteria described in this chapter, the following paragraphs. ~~Designers shall reference the current edition of the "Rules for Sewer Connection." Refer to Appendix H.~~

~~The maximum service lateral diameter shall be one-half the diameter of the main line; however, BES allows a 6-inch lateral to connect with an 8-inch or 10-inch sewer. When it is necessary to connect a 6-inch to an 8-inch pipe, cut a manufactured tee into the existing sewer main.~~

Materials approved for lateral use within the ROW include concrete, PVC, ~~and~~ HDPE and Ductile Iron. The City does not accept Acrylonitrile-Butadiene-Styrene (ABS) pipe anywhere within the public right-of-way or within any public sewer easement. Refer to Table 4.1 Gravity Sewers — Standard Pipeline and Joint Materials, and Appendix H Rules for Sewer Connection.

5.5.2 Horizontal Alignment

Service line tees shall be perpendicular to the sewer main to avoid excessive exposure of other utilities during excavation for construction or maintenance. Refer to Figure 5.2.

To avoid conflict with other utilities during either construction or when performing maintenance work the City requires three feet of horizontal separation between the outside wall of the sewer lateral and the corresponding utility line. Refer to Appendix F when working in proximity to potable water lines.

Lateral manhole taps require 12-inches of separation between the outer diameters of any existing pipe block out and that of the service lateral tap. Refer to 4.6 Pipe to Manhole Geometry for further guidance when connecting to a manhole.

Figure 5.4 Calculating Service Lateral and Sewer main Inverts

5.5.6 City Maintenance Limits of Responsibility

The City maintains only the portion of a service lateral located in the ROW (Contractor's Warranty period ~~accepted~~). The scope and breadth of City maintenance activity is strictly limited. *Title 17.32.055 Maintenance of Sewer Systems* of the City Code describe the activities the City will perform and defines what portion of a service lateral receives this maintenance.

The limits of City maintenance depend on whether the service lateral is located in a right-of-way or an easement.

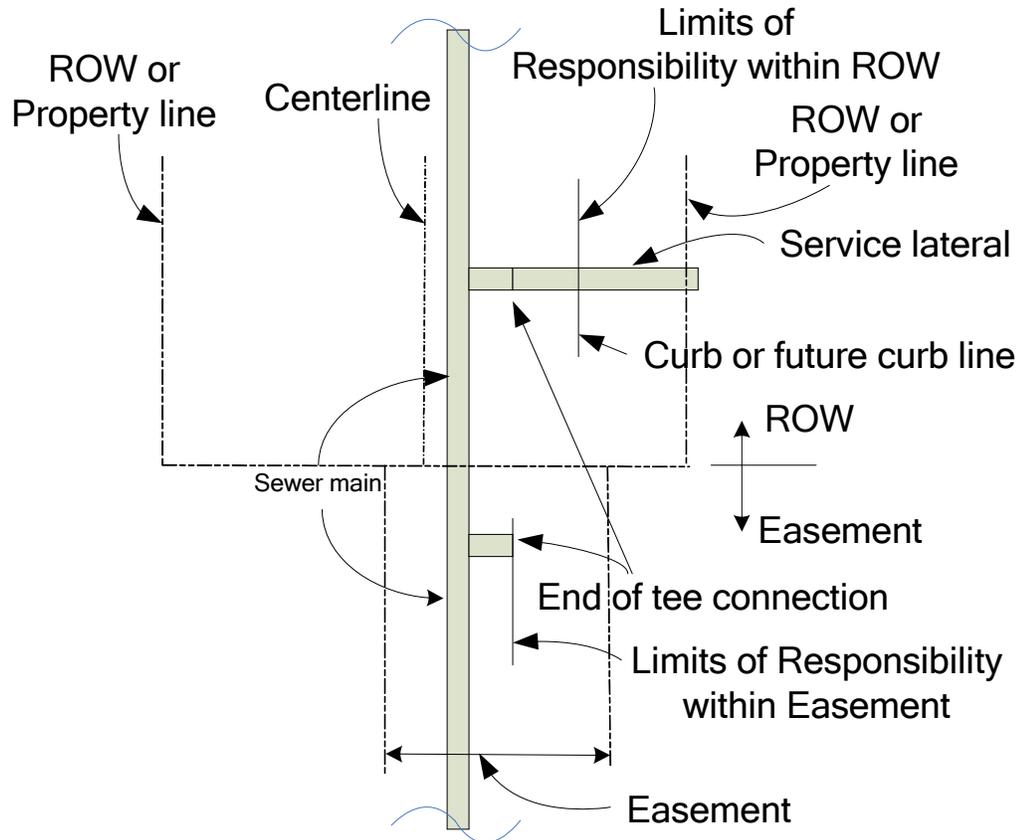


Figure 5.5 Limits of City Maintenance Responsibility

Right-of-way The City only maintains the service lateral located between the sewer main and the curb line or the projected future curb line, if no curbs exist.

An exception from the aforementioned maintenance limits occurs when a sewer lateral is located under a Green Street facility built with either a specified soil mix or multiple curbs that define the facility perimeter. When a property has such a facility along its frontage the City will maintain the lateral to the facility edge or curb that is located nearest to the property line.

Easement area The City only maintains the portion of a service lateral defined to the end of a tee fitting located on the main sewer or to the first pipe joint if out of a manhole.

The location of a future curb line depends on the street classification. The Office of Transportation defines five general street types that designers will encounter throughout the City. Each type has a specific configuration (e.g. number of travel lanes with or without

parking) including right-of-way and pavement width requirements. Road classification depends on the service level and traffic characteristics. The pavement width establishes the curb lines or future curb lines if none currently exist.

Table 5.3 presents pavement widths associated with five street ROW configurations defined by the Office of Transportation Pedestrian Standards. This information is intended to assist designers understand where the limits of City maintenance end. There are variations on these requirements depending on specific planning, site and development considerations. Contact the Office of Transportation to confirm the applicable pavement width standard. Refer to Chapter 1, Useful Contacts Within the City.

Item 11 – Page5-18 . Insert this new Section.

5.5.7 Connection to the Public Sewer System

All lateral connections to public sewers must be done in a manner that assures the integrity and serviceability of the publicly maintained portion of the system. Acceptable methods include a manufactured fitting or a field fabricated fitting that require coring and tapping of the sewer main or manhole to receive the lateral sewer.

Both the main and lateral pipe sizes and material types influence the connection method.

Taps to main sewers shall have a minimum separation of three feet from the outside diameter of the tap to any adjacent lateral. Only one tap is permitted per pipe section for concrete or clay sewer pipe.

The maximum service lateral diameter shall not exceed one-half the diameter of the main line pipe; however, BES allows exceptions to this requirement as long as the connection method presented in Table 5.1 is adhered to and BES approves the method.

Table 5.1 Connection Methods for Joining a Service Lateral to a Public Sewer Pipe or Manhole When an Existing Stubout or Fitting is not available for Use.

<u>Lateral Pipe Size</u>	<u>Sewer Main Size, inches or Asset</u>						
	<u>4</u>	<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>≥12</u>	<u>MH</u>
<u>4 inches</u>	<u>Fitting</u>	<u>Fitting</u>	<u>Core & Tap</u>				
<u>6 inches</u>		<u>Fitting</u>	<u>Fitting</u>	<u>Fitting</u>	<u>Core & Tap</u>	<u>Core & Tap</u>	<u>Core & Tap</u>
<u>8 inches</u>				<u>Fitting</u>	<u>Fitting</u>	<u>Core & Tap</u>	<u>Core & Tap</u>
<u>>8 inches</u>				<u>Fitting</u>	<u>Fitting</u>	<u>Core & Tap</u>	<u>Core & Tap</u>

Permitted manhole taps will require core drilling and/or saw cutting of the manhole wall at the penetration point before breakout of the manhole wall.

The connection method must allow the sewer flow to merge with the existing sewer flow in the main line.

Item 12 - Page 5-18 –“Use of Wye or Wye-Head Fittings”. Insert this new Section.

5.5.7 USE OF WYE OR WYE-HEAD FITTINGS

BES discourages the use of Wye or Wye-head fittings anywhere in the public portion of the sewer system. The City requires that service lateral connections be oriented perpendicular to the sewer main to assist with locating the pipe in the future. Use of a wye fitting requires a second fitting to orient the lateral pipe perpendicular to the main. The City strives to reduce the number of fittings and joints used in the public sewer system to reduce opportunities where roots or failures could occur.

The City allows an exception to this practice under the Nonconforming Program and when addressing preexisting conditions. Wyes installed at the curb to serve separate properties will only be approved by BES when the connecting pipes are preexisting and the affected property owners are participating in the City’s Nonconforming Sewer Conversion program.