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Engineering Design Standards Manual

REVISIONS:

These specifications may be revised periodically as necessary. Each revision will be on replacement loose-leaf pages to be inserted as indicated, accompanied by a replacement title page with the effective date of the revision.

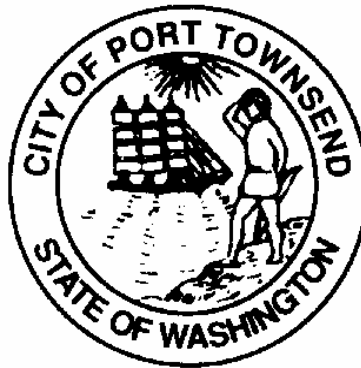
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CITY OF PORT TOWNSEND

DEPARTMENT OF PUBLIC WORKS



ENGINEERING DESIGN STANDARDS MANUAL

April 1997

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FORWARD

The purpose of the Engineering Design Standards is to establish minimum requirements for all development in the City relating to water, sewer, storm drainage, transportation, utilities, clearing and grading, erosion control and construction activities. This document is intended to be used in conjunction with the City of Port Townsend Municipal Code and other applicable design and construction standards including, but not limited to, the latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction, prepared by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works Association.

The Engineering Design Standards apply whenever any public or private work is performed within the right-of-way of the City of Port Townsend or on-site when required by City ordinance, permits, or action of the City Council, including work performed by private parties at their own expense under authority granted by ordinance of the city council or by the permit process of the Building and Community Development Department and/or the Public Works Department.

Any questions on the interpretation of the material contained in this document should be directed to:

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181 Quincy Street, Suite 301
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Waivers and variances from these standards may be granted by the Public Works Director in accordance with the criteria in Titles 12 and 13 PTMC. Any waiver or variance must be approved in writing prior to construction. These guidelines are intended to be minimum standards. Stricter requirements may be applied to a specific development in order to meet the requirements of the Port Townsend Municipal Code, implement the policies of the Growth Management Act Comprehensive Plan, meet permit conditions, or to protect the public health, safety and welfare.

Failure to comply with these standards and guidelines could result in delay of project approvals, non-acceptance of the work and/or withholding or withdrawing of all approvals associated with the facilities proposed.

These specifications may be revised periodically as necessary. It shall be the responsibility of the individual to check with the City of Port Townsend to insure that the Engineering Design Standards manual being used is the most current on file.

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DEFINITION AND TERMS

The following definitions and terms are used for these Standards. If these definitions and terms conflict with any City ordinance, the ordinance language shall govern. If conflicts exist with other standards and documents referred to in the manual, the definition and terms in the City of Port Townsend Engineering Design Standards shall govern.

1. **Abutting property:** includes all property that fronts upon the margin of any street, right-of-way, alley or other public place.
2. **Airgap:** a backflow prevention device that provides an unobstructed vertical distance of at least twice the inside diameter of the supply line, but never less than one inch, through the free atmosphere between a supply line outlet and the overflow rim of a receiving vessel.
3. **Alley:** a public thoroughfare or way having a width of not more than twenty feet which normally affords only a secondary means of access to abutting properties.
4. **Approved Street:** a public right-of-way accepted and approved, in writing, by the public works director to be fully developed to city street standards or any permitted variation. The city maintains all approved streets, unless a duly authorized development agreement requires private maintenance.
5. **Average daily flow:** the total yearly flow divided by the days of operation.
6. **BCD Director:** the Director, or designee, of the building and community development department of the City of Port Townsend.
7. **Backflow:** the flow of water or other liquids, mixtures, or substances into the distribution pipes of a potable supply of water from any source or sources other than its intended source.
8. **Backflow Prevention Device:** a device, assembly, or means to prevent backflow into the potable water system, either by back-siphonage or back pressure.
9. **Back pressure:** the backflow of used, contaminated, or polluted water from a plumbing fixture or vessel into a water supply pipe due to pressure created by booster pumps, boilers, pressure vessels, or elevated plumbing that exceeds the main pressure or operating pressure of the water supply pipe.
10. **Back-siphonage:** the backflow of used, contaminated, or polluted water from a plumbing fixture or vessel into a water supply pipe due to a negative pressure in such pipe.
11. **Bicycle lane:** a clearly marked lane of travel for bicycles on the side of a street or roadway, separated from the automobile lanes by painted strips, curbs or buttons.
12. **Bicycle path:** a bicycle pathway that is physically separated from the roadway and its associated vehicular traffic. No motorized vehicles are permitted.
13. **Bikeway:** any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.
14. **Clerk:** means the clerk of the city of Port Townsend.
15. **City Datum:** the top surface of the copper bolt in the stone monument now standing for the southwest corner of block numbered forty-one in the City of Port Townsend: the intersection of the northerly line of Water Street with the easterly line of Taylor Street, is designated, fixed, established and declared as and for the base, or datum line, to which every grade hereafter established of every street, alley, avenue, or portion thereof, in the city shall refer (PTMC 1.08.010). See also Street Survey Monumentation Plan.

16. City Engineer: The City Engineer for the City of Port Townsend or his/her duly authorized designee.
17. City Street Standards: those standards for right-of-way and transportation system construction and improvement set forth in the city of Port Townsend “Engineering Design Standards,” and in Chapter 12 of the PTMC, together with any other requirements for streets provided by other ordinances of the city.
18. Clean out: a service access in sewer lines designed for maintenance activities.
19. Commercial Services: water or sewer services to businesses engaged in the manufacture and/or sale of a commodity or commodities or the rendering of a service, hotels, motels institutional establishments such as hospitals, nursing homes, places of worship and schools, and mixed use centers (mixed commercial and residential units).
20. Comprehensive drainage plan: a detailed analysis for each drainage basin which compares the capabilities and needs for runoff accommodations due to various combinations of development, land use, structural and nonstructural management alternatives.
21. Council: means city council of the city of Port Townsend.
22. Cross-Connection: any connection between any part of the water system used or intended to supply water for drinking purposes and any source or system containing water or substance that is not or cannot be approved as safe, wholesome potable for human consumption.
23. Cul-de-sac: a short street having one end open to traffic and being terminated at the other end by a vehicular turnaround.
24. Customer: means all persons obtaining water, wastewater or storm drainage utility service through the city of Port Townsend
25. Dedication: conveyance of land to the city for street, pathway, utility or open space purposes by deed or some other instrument of conveyance or by dedication on a duly filed and recorded plat, short plat or binding site plan.
26. Design Storm: the rainfall event which is selected by the public works department for purposes of design, specifying both the return period in years and the duration in hours.
27. Detention facilities: facilities designed to hold runoff while gradually releasing it at a predetermined maximum rate.
28. Developer: any person, including his/her authorized representative, proposing to engage or engaging in, the development of a parcel.
29. Development: (1) construction of a new dwelling unit, mixed use center, commercial or manufacturing establishment, or other new structure on a vacant lot or parcel; or (2) a redevelopment or change in the intensity of the use of an existing structure that creates an appreciable impact on existing infrastructure.
30. Developmental coverage: all developed surface areas within the subject property including, but not limited to, rooftops, driveways, carports, accessory buildings, parking areas, and any other impervious surfaces. During construction “development coverage” shall include the above in addition to the full extent of any alteration of previously occurring soils, slope or vegetation due to grading, temporary storage, access areas, or any other short-term causes.
31. Direct Service Water Customer (or Water Customer): those customers receiving water through a meter installed by the Water Department for end uses directly from the Port Townsend water distribution system and classes as direct service or retail for billing purposes.

32. Director: the public works director for the public works department of the city of Port Townsend, or his/her designee, and shall include without limitation, the city engineer and the city development review engineer
33. Drainage area: the watershed contributing water runoff to and including the subject property.
34. Drainage plan: a plan for collection, transport, treatment, and discharge or recycling of water within the subject property.
35. Easement: the right to use a defined area of property for specific purpose/purposes as set forth in an easement document, on a plat or short plat, or as required for purposes as set forth herein.
36. Engineer: Washington State licensed professional engineer. Engineers are required to have experience and knowledge about the specific field of engineering they are practicing.
37. Fireflow: the rate of water flow needed to fight fires as defined by the city engineering design standards manual.
38. Hammerhead turnaround: an area at the end of a street that is designed to provide a fire apparatus turnaround area.
39. High Strength Waste: any wastewater which has a concentration higher than typical domestic wastewater as further defined under Chapter 13.24 PTMC.
40. Impervious area: any part of a parcel of land that has been modified by the action of persons to reduce the land's natural ability to absorb and hold rainfall. This includes areas that have been cleared, graded, paved, or compacted. Excluded, however, are all lawns and landscaped areas.
41. Industrial Services: means water or sewer service to a business enterprise engaged in the manufacture of products, materials, equipment, machinery and supplies on a substantial or major scale.
42. Interceptor: any gravity sewer main greater than 18 inches in diameter or sewer force main greater than 10 inches in diameter.
43. Irrigation service: a water service with a separate meter used for recreational, landscaping, agricultural, horticultural or other exterior residential or commercial watering system within the city limits and pre-existing, grand fathered systems in the city's out-of-city water service area.
44. Lot Frontage: the boundary of a lot which is along an existing or dedicated public street, or where no public street exists, along a private road, easement or access way. On an interior lot line most parallel to and nearest the street from which access is obtained. On a corner lot the frontage shall be proposed by the property owner, subject to review and approval by the public works director.
45. Maintenance hole: formerly termed manholes, these structures serve as access to sewer and stormwater mains as well as other structures typically found underground.
46. Manifold meter: a separate meter installed for commercial or industrial or establishments in order to separate flow from water and sewer where water is used for non-sewer purposes, such as cooling water, irrigation, landscaping, etc.
47. Non-maintained Street: A non-maintained street is a street which the City does not maintain because:
 - a. The street has not been constructed to city street standards
 - b. The developed properties fronting the street have signed a duly authorized agreement that releases the City from maintenance duties.

48. Opened street: a public right-of-way opened for use by motor vehicles, which may or may not be fully developed to street standards. Opened streets may or may not be accepted or maintained by the city.
49. Park Trees: Trees in public parks, golf courses, and all other city owned land to which the general public has access.
50. Peak discharge: the maximum surface water runoff rate (cfs and cms) determined for the design storm.
51. Person: any person, firm, partnership, association, corporation, organization, or entity of any kind.
52. Planned unit development: residential developments which are planned and/or developed in several stages but submitted together for approvals, and which typically consist of clusters of multi-unit structures interspersed with areas of common open spaces.
53. Plans: the plans, profiles, cross-sections, elevations, details, and supplementary specifications, signed by a licensed professional engineer and approved by the Public Works Director, which show the location, character, dimension, and details of the work to be performed.
54. Potable Water Supply: any water supply system intended or used for human consumption or other domestic uses and which must meet Washington State Department of Health Public Water System Rules and Regulations.
55. Private Sewer: the sewer line and disposal system constructed, installed or maintained where the connection with the public sewer system is not required herein.
56. Private Street: private vehicular access provided for by an access tract, easement, or legal means to serve property that is privately owned and maintained.
57. Project: general term encompassing all phases of the work to be performed and is synonymous to the term "improvement" or "work."
58. Public Sewer: that portion of the system located within public right-of-way or easements and which are operated and maintained by the city.
59. Public Works Director: the Director of the Public Works Department of the City of Port Townsend or his/her designee.
60. Residential Service: a water or sewer service connection to a single-family dwelling unit or duplex (two-family dwelling).
61. Retention facilities: facilities designed to hold water for a considerable length of time and then consume it by evaporation, plant transpiration, or infiltration into the soil.
62. Right-of-Way: property acquired by or dedicated to the city and available for use in pedestrian, vehicular or other transportation modes. Right-of-way may or may not be accessible for public use, and may or may not contain an "opened street."
63. Road: used interchangeably with the term "street."
64. Service Connection (Wastewater): that portion of a line beginning two feet outside the outer foundation wall of the structure to the sanitary sewer main. Side sewers will be maintained by the property owner.
65. Service Connection (Water): that portion of the water system connecting the premises to the water distribution main, including the water tap and all piping and fittings from the main to and including the water meter assembly.
66. Sewer Main: a city-owned pipe or conduit for carrying wastewater.
67. Sewer Service Line: that section of the sewer line extending from the city's main including connection to the structure that has no other common sewers discharging into it.

- Sewer service lines are to be maintained by the property owner.
68. Sidewalk: any and all pedestrian structures or forms of improvements for pedestrians included in the space between the street and the margin, as defined by a curb or the edge of traveled road surface and the line where the public right-of-way meets the abutting property.
 69. Significant Trees and Vegetation: all trees and vegetation, unless otherwise exempted, situated within opened or unopened public rights-of-way as follows (1) trees with a diameter of 12 inches or greater measured four feet from the ground; (2) trees with a diameter of 6 inches or greater measured four feet from the ground and identified in the engineering design standards manual as special, landmark or unique species; or (3) any shrubs or other vegetation identified in the engineering design standards manual as landmark or unique species.
 70. Street: is intended to be broadly defined, and includes any street, highway, easement, avenue, alley or other public right-of-way or public grounds intended for travel, parking or access for pedestrians, vehicles, bicycles, or equestrians or any other legitimate street purpose, whether opened or unopened, platted and partially improved or open but not improved to the level required by the city. Specific street classifications are generally defined as follows:
 - a. Principal Arterial Street: shall have the same meaning as “major arterial” in the Comprehensive Plan, which means a street with access control, channelized intersections, restricted parking, and that collects and distributes traffic to and from minor arterials, and includes any street designated as a major arterial street. Direct access to a principal arterial is usually restricted to intersecting streets or consolidated commercial or industrial entrances.
 - b. Minor Arterial Street: a street, with signals at important intersections and stop signs on the side streets and that collects and distributes traffic to and from collector streets, and includes any street designated as a minor arterial street.
 - c. Collector Street: a street, either existing or proposed, that is intended to carry traffic from local access streets to arterial streets and provides access to abutting property and includes any street shown as a collector street.
 - d. Local Access Street: a public right-of-way used primarily to provide access to abutting residential properties and includes any street not designated as a collector, minor arterial, or principal arterial street.
 71. Street Development Permit: any permit required under the provisions of Titles 12, 13, 16, 17 and 18, PTMC for work in the public right-of-way and is used interchangeably with the terms “street development and utility digging permit,” “street development and utility development permit,” and “water, sewer, storm drainage street development permit.”
 72. Street improvements: subject to reimbursement under Chapter 12.26 PTMC may include: permitting; design; acquisition of right-of-way and/or easements; grading; construction; paving; installation of curbs; streets; gutters; storm drainage; sidewalks or bike lanes incorporated as part of the street improvements; street lighting; signs; planting strips; traffic controls; and other similar improvements as required by the street standards of the city. The term “street improvements” may be used interchangeably with the term “street projects.”
 73. Street Trees: Trees on public right-of-ways between the curb and property line, along the side of streets or in medians of all platted streets, avenues, or ways within the city.

74. Street Survey Monumentation Plan: the survey monuments providing horizontal and vertical control as established by the city and approved by the city council.
75. Substandard Street: any street that does not meet the city's engineering design standards and is not an approved street under Chapter 12 of PTMC.
76. Tiers 1, 2, and 3: refer to the city's infrastructure tiering strategy, which is designed to promote infill and discourage "leap frog" development, as further set forth in the Port Townsend comprehensive plan (see Chapter VII, pages VII-4 to VII-5). A map designating the various tiers in accordance with the comprehensive plan is contained in the attached Exhibit 1.
77. Transmission Mains: water mains that transport water to a large geographical area of the city and are generally greater than or equal to 12 inches in diameter.
78. Use of pronoun: as used herein, the singular shall include the plural, and the plural the singular.
79. Utility: a company providing public services including, but not limited to: electric power, street lighting, telephone, water, sewer, solid waste, or cable television, whether or not such company is privately owned or operated by a governmental entity.
80. Walkway: any sidewalk, trail, pathway other form of improvement designed and intended for use by pedestrians.
81. Wastewater: the combination of water and wastes carried from residences, business buildings, institutions and industrial establishments, which wastes contain polluted water requiring treatment at the wastewater treatment facility.
82. Water Service Area: the area consisting of the corporate limits of the city of Port Townsend and those areas outside of the city that have been designated for water service by ordinance of the city council or by the city's Water System Plan.
83. Water System: all water source and supply facilities, transmission pipelines, storage facilities, pump stations, distribution mains and appurtenances, vehicles, and materials storage facilities.

ABBREVIATIONS

ADD	Average daily demand
AC	Asbestos Cement
APWA	American Public Works Association
AWWA	American Water Works Association
AWWU	Average Winter Water Use
CCC	Cross Connection Control
CFP	Capital Facilities Plan
CCP	Concrete cylinder pipe
CFS	Cubic feet per second
CI	Cast iron
CIP	Capital Improvements Program
CWPP	County-Wide Planning Policies
CWSP	Coordinated Water system Plan
CWSSA	Critical Water Supply Service Area
DOH	State of Washington Department of Health
D/Q Plan	Dungeness/Quilcene Water Resources Management Plan
Ecology	State of Washington Department of Ecology
EDC	Economic Development Council
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
FERC	Federal Energy Regulatory Commission
GMA	Growth Management Act
GPCD	Gallons per capita per day
GPM	Gallons per minute
HGL	Hydraulic grade line elevation (hydraulic gradient)
ISO	Insurance Services Office
JCWRC	Jefferson County Water Resources Council
MCL	Maximum contaminant level
MDD	Maximum daily demand
MG	Million gallons
MGD	Million gallons per day
MUTCD	Manual on Uniform Traffic Control Devices
NTU	Nephelometric Turbidity Units
OGWS	Olympic Gravity Water System
PC	Point of curvature
PHD	Peak hour demand
PI	Point of intersection
PRV	Pressure-reducing valve
PT	Point of tangency
PTMC	Port Townsend Municipal Code
PTPC	Port Townsend Paper Company
PUD	Public Utility District
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act

UGA	Urban Growth Area as defined under GMA
WAC	Washington Administrative Code or Water Advisory Committee
WSDOT	Washington State Department of Transportation
WSRB	Washington Survey and Rating Bureau
WUCC	Water Utility Coordinating Committee