### Glossary and Sources

**Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
</tr>
<tr>
<td>AMC</td>
<td>antecedent moisture condition</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
</tr>
<tr>
<td>AMC</td>
<td>antecedent moisture condition</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>AWWA</td>
<td>American Water Works Association</td>
</tr>
<tr>
<td>BFW</td>
<td>bankfull width</td>
</tr>
<tr>
<td>BMP</td>
<td>best management practice</td>
</tr>
<tr>
<td>Caltrans</td>
<td>California Transportation Department</td>
</tr>
<tr>
<td>CDF</td>
<td>controlled-density fill</td>
</tr>
<tr>
<td>cfs</td>
<td>cubic foot/feet per second</td>
</tr>
<tr>
<td>CLOMR</td>
<td>Conditional Letter of Map Revision</td>
</tr>
<tr>
<td>CN</td>
<td>curve number</td>
</tr>
<tr>
<td>D</td>
<td>diameter</td>
</tr>
<tr>
<td>DBH</td>
<td>diameter at breast height</td>
</tr>
<tr>
<td>Ecology</td>
<td>Washington State Department of Ecology</td>
</tr>
<tr>
<td>ELJ</td>
<td>engineered log jam</td>
</tr>
<tr>
<td>EOE</td>
<td>Office of Equal Opportunity</td>
</tr>
<tr>
<td>ERDC</td>
<td>(U.S. Army) Engineer Research and Development Center</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
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<tr>
<td>FOS</td>
<td>factor of safety</td>
</tr>
<tr>
<td>FPSRD</td>
<td>Fish Passage and Stream Restoration Design</td>
</tr>
<tr>
<td>ft</td>
<td>foot/feet</td>
</tr>
<tr>
<td>ft²</td>
<td>square foot/feet</td>
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<tr>
<td>ft/ft</td>
<td>foot/feet vertical per 1 foot horizontal</td>
</tr>
<tr>
<td>ft/s</td>
<td>foot/feet per second</td>
</tr>
<tr>
<td>FUR</td>
<td>floodplain utilization ratio</td>
</tr>
<tr>
<td>ga</td>
<td>gage</td>
</tr>
<tr>
<td>GIS</td>
<td>geographic information system</td>
</tr>
<tr>
<td>HDD</td>
<td>horizontal directional drilling</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>HDPE</td>
<td>high-density polyethylene</td>
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<tr>
<td>HDS</td>
<td>Hydraulic Design Series</td>
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<tr>
<td>HEC</td>
<td>Hydraulic Engineering Circular</td>
</tr>
<tr>
<td>HEC-RAS</td>
<td>Hydrologic Engineering Center’s River Analysis System</td>
</tr>
<tr>
<td>HGL</td>
<td>hydraulic grade line</td>
</tr>
<tr>
<td>HQ</td>
<td>WSDOT Headquarters</td>
</tr>
<tr>
<td>HSPF</td>
<td>Hydrological Simulation Program-Fortran</td>
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<tr>
<td>H:V</td>
<td>horizontal:vertical</td>
</tr>
<tr>
<td>HW</td>
<td>headwater</td>
</tr>
<tr>
<td>in.</td>
<td>inch(es)</td>
</tr>
<tr>
<td>Injunction</td>
<td>2013 Federal Court Injunction for Fish Passage</td>
</tr>
<tr>
<td>ISPG</td>
<td>Integrated Streambank Protection Guidelines</td>
</tr>
<tr>
<td>LiDAR</td>
<td>light detecting and ranging</td>
</tr>
<tr>
<td>LOMR</td>
<td>Letter of Map Revision</td>
</tr>
<tr>
<td>LW</td>
<td>large wood (also known as LWD or LWM)</td>
</tr>
<tr>
<td>LWD</td>
<td>large woody debris (also known as LW or LWM)</td>
</tr>
<tr>
<td>LWM</td>
<td>large woody material (also known as LWD or LW)</td>
</tr>
<tr>
<td>m</td>
<td>meter(s)</td>
</tr>
<tr>
<td>m²</td>
<td>square meter(s)</td>
</tr>
<tr>
<td>MDL</td>
<td>master deliverable list</td>
</tr>
<tr>
<td>MHHW</td>
<td>mean higher high water</td>
</tr>
<tr>
<td>mph</td>
<td>mile(s) per hour</td>
</tr>
<tr>
<td>MRI</td>
<td>mean recurrence interval</td>
</tr>
<tr>
<td>MW</td>
<td>mobile wood (also known as MWM)</td>
</tr>
<tr>
<td>MWM</td>
<td>mobile woody material (also known as MW)</td>
</tr>
<tr>
<td>N</td>
<td>newton(s)</td>
</tr>
<tr>
<td>NCHRP</td>
<td>National Cooperative Highway Research Program</td>
</tr>
<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
</tr>
<tr>
<td>NRCS</td>
<td>Natural Resources Conservation Service</td>
</tr>
<tr>
<td>OHWL</td>
<td>ordinary high water level</td>
</tr>
<tr>
<td>oz</td>
<td>ounce(s)</td>
</tr>
<tr>
<td>PDF</td>
<td>Portable Document Format</td>
</tr>
<tr>
<td>PE</td>
<td>Professional Engineer</td>
</tr>
<tr>
<td>PEO</td>
<td>Project Engineer’s Office</td>
</tr>
<tr>
<td>PP</td>
<td>polypropylene</td>
</tr>
<tr>
<td>ppt</td>
<td>part(s) per thousand</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
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</tr>
<tr>
<td>PS&amp;E</td>
<td>plans, specifications, and estimates</td>
</tr>
<tr>
<td>psi</td>
<td>pound(s) per square inch</td>
</tr>
<tr>
<td>PVC</td>
<td>polyvinyl chloride</td>
</tr>
<tr>
<td>RESP</td>
<td>rock for erosion and scour protection</td>
</tr>
<tr>
<td>RHE</td>
<td>Region Hydraulics Engineer</td>
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<tr>
<td>ROW</td>
<td>right-of-way</td>
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<tr>
<td>SBUH</td>
<td>Santa Barbara Urban Hydrograph</td>
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<tr>
<td>SCS</td>
<td>Soil Conservation Service</td>
</tr>
<tr>
<td>SFHA</td>
<td>special flood hazard area</td>
</tr>
<tr>
<td>SFZ</td>
<td>structure-free zone</td>
</tr>
<tr>
<td>SR</td>
<td>State Route</td>
</tr>
<tr>
<td>SRH-2D</td>
<td>Sedimentation and River Hydraulics – 2D Model</td>
</tr>
<tr>
<td>Standard Plans</td>
<td>Standard Plans for Road, Bridge, and Municipal Construction</td>
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<tr>
<td>Standard Specifications</td>
<td>Standard Specifications for Road, Bridge, and Municipal Construction</td>
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<tr>
<td>SWM</td>
<td>small woody material</td>
</tr>
<tr>
<td>TBD</td>
<td>to be determined</td>
</tr>
<tr>
<td>Tc</td>
<td>time of concentration</td>
</tr>
<tr>
<td>TESC</td>
<td>temporary erosion and sediment control</td>
</tr>
<tr>
<td>TSF</td>
<td>ton(s) per square foot</td>
</tr>
<tr>
<td>Tt</td>
<td>travel time</td>
</tr>
<tr>
<td>USACE</td>
<td>United States Army Corps of Engineers</td>
</tr>
<tr>
<td>USBR</td>
<td>United States Bureau of Reclamation</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
<tr>
<td>USFS</td>
<td>United States Forest Service</td>
</tr>
<tr>
<td>USGS</td>
<td>United States Geological Survey</td>
</tr>
<tr>
<td>WAC</td>
<td>Washington Administrative Code</td>
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<tr>
<td>WCDG</td>
<td>Water Crossing Design Guidelines</td>
</tr>
<tr>
<td>WDFW</td>
<td>Washington Department of Fish and Wildlife</td>
</tr>
<tr>
<td>WRIA</td>
<td>Water Resource Inventory Area</td>
</tr>
<tr>
<td>WSEL</td>
<td>water surface elevation</td>
</tr>
<tr>
<td>WSDOT</td>
<td>Washington State Department of Transportation</td>
</tr>
</tbody>
</table>
Main Glossary of Terms

A

access  A means of entering or leaving a public road, street, or highway with respect to abutting property or another public road, street, or highway.
access point  Any point that allows private or public entrance to or exit from the traveled way of a state highway, including “locked gate” access and maintenance access points.
aggradation  General and progressive buildup of the longitudinal profile of a channel bed due to sediment deposition.
approach  An access point, other than a public road/street, that allows access to or from a limited access highway on the state highway system.

B

bankfull width  The bankfull channel is defined as the stage when water just begins to overflow into the active floodplain. In channels where there is no floodplain, it is the width of a stream or river at the dominant channel-forming flow.
benefit/cost analysis  A method of valuing a proposition by first monetizing all current expenditures to execute—cost—as well as the expected yields into the future—benefit, then dividing the total benefit by the total cost, thus providing a ratio. Alternatives may be rendered and compared in this fashion where a higher ratio is preferable, indicating a better return on investment.
bicycle  Any device propelled solely by human power upon which a person or persons may ride, having two tandem wheels, either of which is 16 inches or more in diameter, or three wheels, any one of which is more than 20 inches in diameter.
bridge  Any structure that is 20 feet or larger in span measured along the centerline of the roadway.
buried structures  TBD

C

channel complexity  The variation in physical channel components, which may include planform, longitudinal profile, cross-section, sediment distribution, etc.
channel width  For the purposes of Chapter 7, channel width is used to describe bankfull width in a situation where the channel is highly influenced by man or heavily degraded conditions exist (WDFW 2013).
clear zone The total roadside border area, available for use by errant vehicles, starting at the edge of the traveled way and oriented from the outside or inside shoulder (in median applications) as applicable. This area may consist of a shoulder, a recoverable slope, a nonrecoverable slope, and/or a clear run-out area. The clear zone cannot contain a critical fill slope, fixed objects, or water deeper than 2 feet.

climate change vulnerability The risk that a transportation facility will be impacted by the effects of climate change.

collector A context description of a roadway intended to provide a mix of access and mobility performance. Typically low speed, collecting traffic from local roads and connecting them with destination points or arterials. This term is used in multiple classification systems, but is most commonly associated with the Functional Classification System.

collector system Routes that primarily serve the more important intercounty, intracounty, and intrurban travel corridors; collect traffic from the system of local access roads and convey it to the arterial system; and on which, regardless of traffic volume, the predominant travel distances are shorter than on arterial routes (RCW 47.05.021).

consider To think carefully about, especially in order to make a decision. The decision to document a consideration is left to the discretion of the engineer.

contraction scour Contraction scour, in a natural channel or at a bridge crossing, involves the removal of material from the bed and banks across all or most of the channel width. This component of scour results from a contraction of the flow area at the bridge, which causes an increase in velocity and shear stress on the bed at the bridge.

countermeasure An action or approach intended to monitor, prevent, delay, or mitigate the severity of hydraulic and/or erosion problems.

critical fill slope A slope on which a vehicle is likely to overturn. Slopes steeper than 3H:1V are considered critical fill slopes.

crossroad The minor roadway at an intersection. At a stop-controlled intersection, the crossroad has the stop.

curb section A roadway cross section with curb and sidewalk.

D

d_c Critical depth, ft

deliverable Any unique and verifiable product, result, or capability to perform a service that must be produced to complete a process, phase, or project.

design approval Documented approval of the design at this early milestone locks in design policy for 3 years. Design approval becomes part of the Design Documentation Package (see Design Manual Chapter 300 [WSDOT 2020].)
<table>
<thead>
<tr>
<th><strong>design-bid-build</strong></th>
<th>The project delivery method where design and construction are sequential steps in the project development process (23 CFR 636.103).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>design-build contract</strong></td>
<td>An agreement that provides for design and construction of improvements by a consultant/contractor team. The term encompasses design-build-maintain, design-build-operate, design-build-finance, and other contracts that include services in addition to design and construction. Franchise and concession agreements are included in the term if they provide for the franchisee or concessionaire to develop the project that is the subject of the agreement (23 CFR 636.103).</td>
</tr>
<tr>
<td><strong>design-builder</strong></td>
<td>The firm, partnership, joint venture, or organization that contracts with WSDOT to perform the work.</td>
</tr>
<tr>
<td><strong>design element</strong></td>
<td>Any component or feature associated with roadway design that becomes part of the final product. Examples include lane width, shoulder width, alignment, and clear zone (see Design Manual Chapter 1105 [WSDOT 2020].)</td>
</tr>
<tr>
<td><strong>designer</strong></td>
<td>This term applies to WSDOT design personnel. Wherever “designer” appears in this manual, design-build personnel shall deem it to mean: Engineer of Record, Design Quality Assurance Manager, local programs project design staff, developer project design staff, design-builder, or any other term used in the design-build contract to indicate design-build personnel responsible for the design elements of a design-build project, depending on the context of information being conveyed.</td>
</tr>
<tr>
<td><strong>design flood</strong></td>
<td>The discharge that is selected as the basis for the design or evaluation of a hydraulic structure including a hydraulic design flood, scour design flood, and scour check flood.</td>
</tr>
<tr>
<td><strong>design methodology</strong></td>
<td>Design methodology has the meaning used in the Washington Department of Fish and Wildlife Water Crossing Design Guidelines.</td>
</tr>
<tr>
<td><strong>design reference reach</strong></td>
<td>A reach of stream, preferably within the same watershed, that is relatively stable.</td>
</tr>
<tr>
<td><strong>desirable</strong></td>
<td>Design criteria that are recommended for inclusion in the design.</td>
</tr>
<tr>
<td><strong>document (verb)</strong></td>
<td>The act of including a short note to the Design Documentation Package that explains a design decision.</td>
</tr>
<tr>
<td><strong>driveway</strong></td>
<td>A vehicular access point that provides access to or from a public roadway.</td>
</tr>
<tr>
<td><strong>easement</strong></td>
<td>A documented right, as a right-of-way, to use the property of another for designated purposes.</td>
</tr>
<tr>
<td><strong>element</strong></td>
<td>An architectural or mechanical component or design feature of a space, site, or public right-of-way.</td>
</tr>
</tbody>
</table>
facility
All or any portion of buildings, structures, improvements, elements, and pedestrian or vehicular routes located in a public right-of-way.

Federal Highway Administration (FHWA)
The division of the U.S. Department of Transportation with jurisdiction over the use of federal transportation funds for state highway and local road and street improvements.

final design
Any design activities following preliminary design; expressly includes the preparation of final construction plans and detailed specifications for the performance of construction work (23 CFR 636.103). Final design is also defined by the fact that it occurs after NEPA/SEPA approval has been obtained.

five-hundred-year flood
The flood due to storm and/or tide having a 0.2 percent chance of being equaled or exceeded in any given year. Commonly denoted as Q500.

floodplain utilization ratio (FUR)
The floodplain utilization ratio is the flood-prone width (100-year top width) divided by the bankfull width.

freeboard
The vertical distance above the water surface elevation that is allowed for waves, surges, drift, and other contingencies.

g
geotextiles (nonwoven)
A sheet of continuous or staple fibers entangled randomly into a felt for needle-punched nonwovens and pressed and melted together at the fiber contact points for heat-bonded nonwovens. Nonwoven geotextiles tend to have low to medium strength and stiffness with high elongation at failure and relatively good drainage characteristics. The high elongation characteristic gives them superior ability to deform around stones and sticks.

geotextiles (woven)
Slit polymer tapes, monofilament fibers, fibrillated yarns, or multifilament yarns simply woven into a mat. Woven geotextiles generally have relatively high strength and stiffness and, except for the monofilament wovens, relatively poor drainage characteristics.

H
headwater (HW)
Depth from inlet invert to upstream total energy grade line, feet.

highway
A general term denoting a street, road, or public way for the purpose of vehicular travel, including the entire area within the right-of-way.

hydraulic design flood
The discharge and associated probability of exceedance that reflects the desired level of service for a roadway/bridge crossing a watercourse and/or floodplain. This flood drives the capacity design (i.e., size and configuration) of the waterway opening. By definition, the approach roadway or bridge should not be inundated by the water levels produced by this flood.
hydraulic opening  The width perpendicular to the creek beneath the proposed structure that is necessary to convey the design flow.

hydraulic width  The minimum width perpendicular to the creek beneath the proposed structure that is necessary to convey design flow and allow for stream processes as established in the specialty report.

I

Injunction, the United States of America et al., v. State of Washington et al. Permanent Injunction Regarding Culvert Correction, United States District Court, Western District of Washington at Seattle, No. C70-9213 Subproceeding No. 01-1 (Culverts), ordered March 29, 2013.

intersection An at-grade access point connecting a state highway with a road or street duly established as a public road or public street by the local governmental entity.

Interstate System A network of routes designated by the state and the FHWA under terms of the federal-aid acts as being the most important to the development of a national system. The Interstate System is part of the principal arterial system.

J

justify Preparing a memo to the DDP identifying the reasons for the decision: a comparison of advantages and disadvantages of all options considered. A more rigorous effort than document.

K

key pieces Logs that are large enough to persist and influence hydraulics and bed topography in a stream through a wide range of flow conditions.

L

lane A strip of roadway used for a single line of vehicles.

lane width The lateral design width for a single lane, striped as shown in the Standard Plans and Standard Specifications (WSDOT 2021c). The width of an existing lane is measured from the edge of traveled way to the center of the lane line or between the centers of adjacent lane lines.

lateral (storm sewer) These are the first inlets that contribute flow into a storm sewer system.

level of service (LOS) LOS is based on peak hour, except where noted. LOS assigns a rank (A–F) to facility sections based on traffic flow concepts like density, delay, and/or corresponding safety performance conditions. (See the Highway Capacity Manual and AASHTO’s Geometric Design of Highways and Streets [“Green Book”] for further details.)
managing project delivery  A WSDOT management process for project delivery from team initiation through project closing.

median  The portion of a divided highway separating vehicular traffic traveling in opposite directions.

one-hundred-year flood  The flood due to storm and/or tide having a 1 percent chance of being equaled or exceeded in any given year. Commonly denoted as Q100.

over-coarsened channel  A constructed channel with a median particle size that is greater than 20 percent larger than the median particle size of the design reference reach; is deformable at discharges below the 100-year discharge.

Plans, Specifications, and Estimates (PS&E)  The project development activity that follows Project Definition and culminates in the completion of contract-ready documents and the engineer's cost estimate.

preventive countermeasure  Structures or other management actions used to prevent erosion from damaging critical infrastructure.

project  The Project Management Institute defines a project to be “a temporary endeavor undertaken to create a unique product or service.”

project definition  (see Project Summary)

Project Engineer  This term applies to WSDOT personnel. Wherever “Project Engineer” appears in this manual, the design-builder shall deem it to mean “Engineer of Record.”

project reach  The segment of stream in which the project is located.

proposal  The combination of projects/actions selected through the study process to meet a specific transportation system need.

purpose  General project goals such as improve safety, enhance mobility, or enhance economic development.

Q  Discharge, cfs.

Qc  Culvert discharge, cfs.

Qo  Overtopping discharge over total length of embankment, cfs.

Qt  Total discharge, cfs.
<table>
<thead>
<tr>
<th><strong>R</strong></th>
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<tbody>
<tr>
<td><strong>reference reach</strong></td>
</tr>
<tr>
<td><strong>regrade, channel regrade, natural channel regrade, natural regrade</strong></td>
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<tr>
<td><strong>Request for Proposal (RFP)</strong></td>
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<tr>
<td><strong>residual pool depth</strong></td>
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<tr>
<td><strong>right-of-way</strong></td>
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<tr>
<td><strong>road approach</strong></td>
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<tr>
<td><strong>roadway</strong></td>
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<tr>
<td><strong>roughened channel</strong></td>
</tr>
<tr>
<td><strong>roundabout</strong></td>
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<thead>
<tr>
<th><strong>S</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>scour</strong></td>
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</table>
scour check flood  The discharge (flood) resulting from storm, storm surge, tide, or some combination thereof having a flow rate in excess of the scour design flood, but in no case a discharge (flood) with a recurrence interval exceeding the greater of the typically used 500-year or the 2080 100-year projected discharge (flood) (if it has been deemed practicable to do so), that creates the deepest scour at structure foundations.

scour design flood  The discharge (flood) resulting from storm, storm surge, tide, or some combination thereof having a flow rate equal to or less than the 100-year discharge (flood) or the 2080 100-year projected discharge (flood) (if it has been deemed practicable to do so), that creates the deepest scour at structure foundations.

shoulder  The portion of the roadway contiguous with the traveled way, primarily for accommodation of stopped vehicles, emergency use, lateral support of the traveled way, and, where allowed, use by pedestrians and bicycles.

site  Parcel(s) of land bounded by a property line or a designated portion of a public right-of-way.

speed  The operations or target or posted speed of a roadway. There are three classifications of speed established:

- Low speed  is considered 35 mph and below.
- Intermediate speed  is considered 40–45 mph.
- High speed  is considered 50 mph and above.

stable stream  A stream, over time (in the present climate), that transports the flows and sediment produced by its watershed in such a manner that the dimension, pattern, and profile are maintained without either aggrading or degrading.

state highway system  All roads, streets, and highways designated as state routes in compliance with RCW 47.17.

stream designer  This term applies to WSDOT design personnel and is used to distinguish the work that is performed using Chapter 7 and Chapter 10 from the rest of the Hydraulics Manual. Wherever “stream designer” appears in this manual, design-build personnel shall deem it to mean: Water Resources Engineer of Record, Design Quality Assurance Manager, design-builder, or any other term used in the design-build contract to indicate design-build personnel responsible for the design elements of a design-build project, depending on the context of information being conveyed.

stream simulation  The design methodology outlined in the 2013 Water Crossing Design Guidelines defined as Stream Simulation.

streambed mix  Sediment size distribution that uses pebble counts from the reference reach for the D50 and D84 and an even, designed distribution of sizes for finer classes (USFS 2008).

superelevation  The rotation of the roadway cross section in such a manner as to overcome part of the centrifugal force that acts on a vehicle traversing a curve.
superelevation transition length
The length of highway needed to change the cross slope from normal crown or normal pavement slope to full superelevation.

T

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>tailwater (TW)</td>
<td>Tailwater depth measured from culvert outlet invert, feet.</td>
</tr>
<tr>
<td>thalweg</td>
<td>Relates to the geometrics of natural or artificial water conveyance channels. More specifically, a thalweg delineates the line connecting the deepest points throughout any given point in a channel.</td>
</tr>
<tr>
<td>total scour</td>
<td>The sum of long-term degradation, general (contraction) scour, and local scour.</td>
</tr>
<tr>
<td>traveling public</td>
<td>Motorists, motorcyclists, bicyclists, pedestrians, and pedestrians with disabilities.</td>
</tr>
<tr>
<td>trunk (storm sewer)</td>
<td>The pipes that make up the storm sewer system that are not laterals.</td>
</tr>
</tbody>
</table>

U

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>urban area</td>
<td>An area designated by the Washington State Department of Transportation (WSDOT) in cooperation with the Transportation Improvement Board and Regional Transportation Planning Organizations, subject to the approval of the FHWA.</td>
</tr>
<tr>
<td>urbanized area</td>
<td>An urban area with a population of 50,000 or more.</td>
</tr>
</tbody>
</table>

W

Water Crossing Design Guidelines (2013 WCDG)
The 2013 Water Crossing Design Guidelines, as published by the Washington Department of Fish and Wildlife at https://wdfw.wa.gov/publications/01501. This version of the document has been approved for use on WSDOT projects with exceptions as noted in Chapter 7 and Chapter 10. If a newer version of the document is published, the Hydraulics Section must approve of it prior to use.

Z

<table>
<thead>
<tr>
<th>Zone</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone A</td>
<td>FEMA Zone designation. Areas with a 1 percent annual chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or flood elevations are shown within these zones.</td>
</tr>
<tr>
<td>Zone AE</td>
<td>FEMA Zone designation. The base floodplain where base flood elevations are provided. AE Zones are on new format FIRMs instead of A1–A30 Zones.</td>
</tr>
<tr>
<td>Zone A1-30</td>
<td>FEMA Zone designation. These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).</td>
</tr>
</tbody>
</table>
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