

CHAPTER 1 - GENERAL PLANNING, DESIGN, AND APPROVAL REQUIREMENTS

1.00 Requirements for Public and Private Improvements

A. General

The purpose of these standards is to define requirements for the design and construction of public and private improvements to serve new and future developments. These include street, bikeway/multi-use trails, drainage, water, and sanitary sewer improvements as required by the development review process, City Ordinance, and other City policies adopted by the City Council. Where not governed by building or other codes, standards for site grading, erosion control, parking lot and driveway construction, and other infrastructure on private property shall be governed by these standards for the purposes of design and inspection. No such work shall commence prior to City approval of the construction plans. Designs submitted shall be stamped by a registered Professional Engineer licensed to practice in the State of Washington.

All public improvements and private streets, parking lots, sidewalks, and driveways shall be designed and constructed according to the most recent edition of the *ADA Standards for Accessible Design* and the *Public Right of Way Accessibility Guidelines* in such a manner as to be readily accessible to and usable by individuals with disabilities as per the requirements of the Americans with Disabilities Act of 1990. This includes providing curb ramps at intersections with pedestrian crosswalks to allow a smooth transition between street and sidewalk elevations.

The *Washington State Department of Transportation Standard Specifications* including their most recent revisions are hereby adopted and incorporated as part of this document by reference except as modified herein.

B. Shortened Designation

These City of Stevenson Engineering Standards for Public Works shall be cited routinely in the text as the "Standards".

C. Applicability

These Standards shall govern all new construction and upgrading of facilities both in the right-of-way and on private property for: transportation related facilities; storm drainage facilities and stream channel improvements; sewer and water improvements; and park, recreation, and open space facilities used by the public.

D. Requirements for Public Welfare

It is the purpose of these standards to provide for and promote the health, safety, and welfare of the general public, and not create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of these standards.

The Standards established by this Chapter are intended to represent the minimum design standards. Compliance with these Standards does not relieve the designer of the responsibility to apply sound professional judgment to protect the health, safety, and welfare of the general public. Additionally, since these are minimum standards, special site conditions and environmental constraints may require a greater level of protection than would normally be required under these Standards. The designer must apply these Standards bearing in mind these constraints.

E. Two-year Maintenance Surety Bond Requirement

The developer is required to provide a maintenance bond for a minimum of 20% of the full cost of construction for all public improvements and any private improvements that directly connect to or otherwise effect City utilities for a period of two (2) years after acceptance of the project, which will not be released without written approval by the City. The developer shall provide from their contractor an itemized cost worksheet. The contractor shall use State Prevailing Wage costs to develop estimate. The Contractor shall place the following note on the worksheet; "To the best of my knowledge the itemized quantities and cost included herein are an accurate account of the full cost of construction to be provided as required to meet the City's Maintenance Bond requirement".

For multi-phased developments where public access road(s) was (were) built and accepted for an earlier phase, and where the access road(s) will serve as construction access for future phase(s), the City will request the developer and their contractor to extend the surety bond for such access road(s) until such time a second access road is built for the development, or until all phases are completed. The surety bond period will then be extended for two years after completion and construction acceptance of the public and private improvements of that final phase. Its release is subject to final inspection and acceptance by the City, or acceptance of repairs requested by the City as part of the maintenance bond inspection prior to the expiration of the bond.

F. Requirement for Street Utility Extension to Limits of Property

Public streets, bikeways/multi-purpose trails, water mains, sanitary sewer mains, and storm sewer mains shall be extended through and to the extremes of the property being developed for extension to future development as determined by the City. The developer shall not be reimbursed for utility extensions to the limits of the property being served. If a utility line must be oversized to serve the ultimate tributary area beyond the proposed development, the developer may request compensation for over sizing as authorized by Stevenson Municipal Code. Such requests shall be in writing and shall be made to the City Engineer.

G. City Acceptance Process- Planned Unit Developments (PUD) and Subdivisions

Various permits required for completion and occupancy of any home within a PUD or subdivision must meet the requirements listed herein. These requirements are in addition to any requirements of the City Building or Community Development departments.

1) Model Home Permits

The following requirements shall be met before the issuance of any building permit.

- a. The lot on which the home is to be constructed shall have either property corner pins or a building pad survey.
- b. At a minimum, 20-foot gravel roads shall be installed from a paved public street to the lot on which the home is to be constructed.
- c. Street signage must be installed from an existing public street to the lot on which the home is to be constructed.
- d. If the final plat for the subdivision has not been recorded, the subdivision shall display temporary signage that clearly indicates the original property address prior to subdivision. If the property had no situs address, prominent signage with the subdivision name shall be installed to assist emergency services in locating the property in the event of an emergency.
- e. An active fire hydrant must be located within 500 feet of any combustible construction.

2) Building Permits

The following requirements shall be met before the issuance of any building permit other than a model home permit.

- a. All requirements listed in Section G.1 above.
- b. The subdivision Final Plat must be recorded.
- c. If a performance bond is used to defer public improvements for the Final Plat process, all public improvements must be in place and accepted by the City prior to issuance of any Certificates of Occupancy, including temporary.

3) Water Meter issuance

The following requirements shall be met prior to issuance of a water meter for a single-family residence the following requirements shall be met.

- a. Inspection approval of all water lines, including pressure testing and bacterial tests.
- b. Inspection approval of all meter boxes and meter setters.

4) Acceptance and Final Occupancy

The following requirements shall be met prior to final occupancy of any building within a PUD or subdivision, or phase thereof.

- a. All requirements listed in Sections G.1 through G.3 above.
- b. All required inspections are completed through the inspection checklist.
- c. A maintenance bond for 20% of the cost of all public and private improvements.
- d. Approved as-built drawings and files shall be submitted.
- e. Copies of recorded deeds for all dedicated public assets.

1.01 Precedence of Documents

If there is a conflict between approval documents, the document highest in precedence shall control. The precedence shall be:

First: Permits from other agencies or jurisdictions, as may be required by law.

Second: Notice of Decision and Final Order Conditions of Approval, and project specific Development Agreements.

Third: City of Stevenson Engineering Standards for Public Works Construction.

Fourth: City of Stevenson Ordinances (Stevenson Municipal Code).

Fifth: Plans and details prepared by the design engineer and approved by the City.

Sixth: American Public Works Association / Washington State Department of Transportation Standard Specifications, latest edition.

Seventh: Reference specifications.

Supplemental written agreements and approved revisions to plans and specifications by the appropriate jurisdictions will take precedence over documents listed above. Detailed plans shall have precedence over general plans. In any event, the determination of the City Engineer shall be final.

1.02 Abbreviations and Definitions

AASHTO	American Association of State Highway and Transportation Officials
AC	Asphaltic Concrete
ACI	American Concrete Institute

ADA	Americans with Disabilities Act of 1990
ADT	Average Daily Traffic
ANSI	American National Standards Institute
APWA	American Public Works Association
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
Best Management Practice (BMP)	The schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices, that when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters.
Bicycle Facilities	A general term denoting improvements and provisions which accommodate or encourage bicycling, including parking facilities, maps, signs, pathways, bike lanes, widened sidewalks, bikeways and shared roadways designated for bicycle use.
Bicycle Lane (Bike Lane)	A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists
Bicycle Path (Off-Street Pathway)	A paved pathway physically separated from motorized vehicular traffic by an open space or barrier within an independent right-of-way
Bicycle Route (Bike Route)	A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without a specific bicycle route number or as designated on a bicycle map, brochure or guidebook
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
CBE	Crushed base equivalent (CBE) is the number that directly relates the traffic coefficient to the required number of inches of rock for street structural sections
CBR	California Bearing Ratio
City	City of Stevenson with the City Engineer or designee as the lead contact person
City Engineer	City of Stevenson's consulting or staff city engineer having authority specified in State law or City ordinances, or their designated representative
Contractor	The agent of the developer completing the construction activities associated with a given project
Contractor's Equipment	The phrase "Contractor's Equipment" shall include all items of materials or equipment remaining in the contractor's ownership and removed from the site upon completion of the project
DAHP	The Department of Archaeology and Historic Preservation

Developer	The owner and/or their agent responsible for a given project
Director	City of Stevenson's Public Works Director, or their designated representative
Engineer	The City Engineer
Engineering Acceptance	Acceptance of ownership of donated assets by the City. Initiates the two-year maintenance period for the developer.
Engineering Standards	The latest edition of the "City of Stevenson Engineering Standards for Public Works Construction".
EPA	U.S. Environmental Protection Agency
Equipment	The machinery, accessories, appurtenances and manufactured articles to be furnished and/or installed under the Project
FEMA	Federal Emergency Management Agency
GPS	Global Positioning System
IE	Invert Elevation
Intersection	Refers to the area jointed by two (2) or more roads intersecting. For approaches of a continuous street at an acute curve or some other angle point with different street names
Item	A convenient subdivision of work under these specifications, as herein separately described
Material(s)	These words shall be construed to embrace machinery, manufactured articles, materials of construction (fabricated or otherwise) and any other classes of material to be furnished in connection with the project
MUTCD	Manual on Uniform Traffic Control Devices
Or Equal	Any manufactured article, material, method, or work which, in the opinion of the Engineer, is equally desirable or suitable for the purposes intended in these specifications and contract, as compared with similar articles specifically mentioned herein
OSHA	Occupational Safety and Health Administration
Parking Lot	Paved surfaces on private property intended for the movement and storage of vehicles
Plans	The plans shall mean all official drawings or reproductions of drawings made or to be made pertaining to the work provided for in the contract, or to any structure connected therewith
Private Improvements	Any improvements that will be owned and/or maintained in common by a future Homeowner's Association, Business Association, lot owners, or tenants (i.e. are not publicly owned)
Project	The structure or improvement to be constructed in whole or in part through the performance of the contract
PRV	Pressure Reducing Valve
Sidewalk	The portion of a street designed for preferential or exclusive use by pedestrians

Specifications	The specifications shall mean the prescribed directions, requirements, explanations, terms and provisions pertaining to the various features of the work to be done, or manner and method of performance, and the manner and method of measurements and payments. They also include directions, requirements, and explanations as set forth on the plans
Standards	City of Stevenson Engineering Standards for Public Works Construction, Volume 1, 2, and 3 latest edition
Standard Details	The latest edition of the City of Stevenson's standard details for public works construction.
Standard Specifications	The latest edition of the "Standard Specifications for Road, Bridge, and Municipal Construction" as published by the Washington State Department of Transportation and the American Public Works Association
Stormwater Management Manual for Western Washington (SWMMWW)	A manual, as prepared by the Washington State Department of Ecology, that contains BMPs to prevent, control or treat pollution in stormwater and reduce other stormwater-related impacts to waters. The SWMMWW is intended to provide guidance on measures necessary in Western Washington to control the quantity and quality of stormwater runoff from new development and redevelopment.
Street	A public way which affords the principal means of access to abutting property
Traffic Coefficient	A number used in determining the structural section of a street
Trail	In the context of the Standards - "Trail" is synonymous with Multi-use Path (off-street pathway)
UL	Underwriter's Laboratory
WSDOT	The Washington State Department of Transportation
Wetlands	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Identification and delineation of jurisdictional wetlands and wetland boundaries shall be done by a qualified biologist using applicable State and Federal guidelines.
Words and Phrases	Whenever the words, "as directed", "as required", "as permitted", or words of like effect are used, it shall be understood that the direction, requirement or permission of the Owner and Engineer is intended. The words, "sufficient", "necessary", "proper", and the like shall mean sufficient, necessary or proper in the judgment of the Owner and Engineer. The words, "approved", "acceptable", "satisfactory", or words of like import shall mean approved by or acceptable to the Owner and Engineer

Work	The work necessary to manufacture and deliver machinery, equipment and material and/or the furnishings of all labor, tools, material, equipment, construction equipment, working drawings, where required, and other, necessities for the construction or erection of the structures shown and called for in the plans, specifications and contract, and the act of constructing or erecting said structures complete.
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1.03 Permits

Permits, approvals, or agreements are required by the City, and sometimes other jurisdictions, prior to initiating any construction or demolition work elements described within these Standards.

Construction of improvements without the required permits may, at the discretion of the City Engineer, result in the following penalties:

- Immediate stop work order in force until all applicable permits are received
- Removal and reconstruction of improvements in accordance with approved plans
- Increased maintenance bond amounts
- Increased warranty periods
- Refusal of City to accept improvements with applicable permits

The majority of work covered under these Standards will require multiple permit authority reviews and approvals. Several types of permits and approvals require prior approval from the authority before a building or other substantial permits can be issued. Any questions regarding information about permits, approvals, and agreements should be directed to the City Engineer.

The following general categories describe the major permits, approvals, and agreements, along with issuing permit/code authority if other than the City of Stevenson:

A. Environmental Review

For most projects, including clearing and grading activity, an Environmental Checklist must be completed by the applicant and submitted along with plans, specifications, and other information when approval or permits are being requested for a project. The City Planner conducts the Environmental Review and makes a SEPA Threshold Determination for the City.

Projects larger than one acre require coverage under the State of Washington Department of Ecology's Construction Stormwater General Permit. No grading permit shall be issued until proof of coverage has been provided.

B. Building Permits

A Building Permit is required for all construction work for structures including alteration, repairs and demolition. This includes retaining walls over 4 feet in height or with a surcharge loading, and fences over six (6) feet tall. Box and arch culverts are also included. Demolition Permits for structures greater than four thousand square feet (4,000 sq. ft.) require the submittal of an Environmental Checklist.

C. Approvals and Other Permits

There are several other permits or approvals which may be required and referred to in these Standards: Right-of Way Permit; Developer Extension Agreements; plat and short plat approvals; and Certificate of Occupancy.

In addition, there are several other City approvals (land use) which may have been obtained prior to the above listed permits and which may affect the Standards as contained in this

document.

1.04 General Requirements for Utility Extensions (Sanitary Sewer, Storm Sewer, Water)

- A. When extension of the existing utility system for service is required, the developer shall submit site and improvement plans, utility design plans and design review and administration fees. The utility design plans shall be prepared and submitted as described in these Standards.
- B. Easements for the utility system shall be prepared by a surveyor or engineer licensed to practice in the State of Washington. The easement shall be reviewed and approved by the City prior to acceptance. All public utility easements shall be a minimum of 15 feet wide unless otherwise noted in these standards or required by the City Engineer. Width and location of private utility easements shall be determined by the City Engineer or the Building Official as appropriate.
- C. Upon final completion and final inspection approval, Public Works will issue a letter of "Engineering Acceptance" to the developer indicating acceptance by the City of the developer extension. The two-year maintenance period for all developer constructed improvements begins on the date of Engineering Acceptance.
- D. The developer shall have a surveyor licensed in the State of Washington provide final as-built elevations of manhole inverts and tops, gravity pipe grades, and utility locations. All elevations shall be on NAVD 88 datum.

1.05 Submittal Requirements

A. General

The following documents shall be submitted for engineering review:

- Design Plans for all streets, stormwater facilities, sanitary sewer utilities, and water utilities
- Grading Plans
- Erosion Control Plans
- Lighting Plans to include details sheet and a photometric analysis
- Transportation Plans that including pedestrian and vehicular circulation paths
- Landscape Plans
- Any "condition(s) of approval" items required prior to engineering approval, in the Land Use Notice of Decision.
- Stormwater Technical Information Report, including all model outputs
- For resubmittals, a response to the comments that addresses each City comment from a prior review

B. Transportation/Traffic Impact Analysis (TIA)

A TIA will be required if the project generates more than 10 p.m. peak hour trips or more than 100 daily trips. The TIA shall evaluate surrounding roadways and intersections and any improvements found to be necessary will be required to be completed. The applicant's traffic engineering should submit a scoping memo to the City Engineer with a proposed scoping of the TIA. Work should not proceed on a TIA without the approval or modification of the TIA scope by the City Engineer.

1.06 General Requirements for Engineering Plans

A. Design Plan Format

- 1) The plans shall be submitted in PDF format, with standard print sizes of 22-inch x 34-inch or 24-inch x 36-inch sheets. Plans of any other size will not be reviewed or accepted without prior written approval from the City Engineer.
- 2) All sheets shall have a 1.5-inch x 3.0-inch blank space in the upper right-hand corner for batch stamping of plans by the City.
- 3) Title/Cover sheet to include project name, vicinity map, name and mailing address of developer/owner and engineering firm, general notes, notice to excavators, sheet index, and a signature block. Vicinity maps shall show the location of the project in respect to the nearest major street intersection.
- 4) A north arrow shall be shown on each plan view sheet of the plans and adjacent to any other drawing which is not oriented the same as other drawings on the sheet.
- 5) Copies of each applicable City Standard Detail - Reference each City Standard Drawing by number on the plan sheets.
- 6) The scale shall be 1-inch = 10 feet, 20 feet, 30 feet, 40 feet, or 50 feet horizontally for all drawings and shall be 1-inch = 2 feet, 3 feet, 4 feet, 5 feet, or 10 feet vertically. Scale shall be shown with north arrow. A different scale may be used on structural details.
- 7) Letter size shall not be smaller than 0.12 of an inch high on full-size plan sheets.
- 8) The location and elevation of a National Geodetic Survey, United States Geological Survey, Skamania County, or City of Stevenson bench mark shall be referenced on the plans. The datum shall be on NAVD 88 datum (vertical) and NAD 83 (2011) (horizontal). No other datum shall be used without permission of the City Engineer. Temporary control bench marks and elevations shall also be shown on the plans.
- 9) A title block shall appear on each sheet of the plan set and shall be placed in the lower right-hand corner of the sheet, across the bottom edge of the sheet, or across the right-hand edge of the sheet. The title block shall include the names of the project, the engineering firm, the owner, the sheet title, and the sheet number.
- 10) The seal of the registered Washington Professional Engineer responsible for preparation of the plans shall appear on each sheet.
- 11) The description and date of all revisions to the plans shall be shown on each sheet affected and shall be approved and dated by the registered Professional Engineer of record as evidenced by an original signature or initial. The location of all revisions on each plan sheet shall be clearly identified through the use of "clouds", triangles or some other visible feature.
- 12) Through use of standard drafting symbols, indicate the location and direction of view for all sections.

B. Site Development Plans shall be organized as follows:

- 1) Title sheet.
- 2) Approved preliminary plat or approved site plan.
- 3) Existing Conditions Plan - A topographic survey be performed on and within 100 feet of the site and is to include, but not limited to the following; topography at 2 foot contour interval, contours shall be labeled with elevations at ten foot interval; watercourses (intermittent creek, streams, Rivers, etc.) and areas prone to flooding; FEMA designated floodplains and floodway; designated Shoreline areas; water bodies and known wetlands, wetland delineated boundaries and buffers; unstable slopes and landslide hazard areas; significant habitat areas and buffers; significant historic sites; layout and dimensions of

all existing (parent) parcels; location of adjacent property lines; location of any existing building(s) on the site; location and width of existing easements for access, drainage, utilities, etc.; name, location, width of existing right-of-way, centerline and right-of-way radius of existing roadways that abut the site; name, location, width and surface material (e.g. gravel, asphalt or concrete) of roadways and easements (private and public); location and width of existing driveways and those driveways across the street; location and width of existing pedestrian and bicycle facilities on and within 100 feet of the site; location and direction to nearest fire hydrant; and location of existing sewage disposal systems and wells on site and within 100 feet of the site (as available from the city or health district). This sheet shall also note the source of information, date of field work, datum and benchmarks, and location of original document.

- 4) Grading and erosion control plan with maximum existing and proposed contour intervals of 2 feet. The extent and limits of sensitive lands and buffers, as defined by the City Municipal Code shall be delineated on this sheet.
- 5) Street and storm sewer, showing existing and finished contours at 2-foot intervals. Storm sewer information may be included on water and sewer sheets where practical. In all cases, all proposed utilities shall be shown on each utility sheet, although notes and call-outs may be segregated per individual sheet.
- 6) Street and storm sewer profiles showing vertical curve information and stormwater invert and rim elevations. Sanitary sewer, water and other private utilities shall be shown for reference including crossings within profiles.
- 7) Stormwater detention facility plan, sections, details and calculations showing cell and pond volumes and critical storm elevations of the Water Quality, 2-yr, 10-yr and 100-yr modeled storm events.
- 8) Sanitary sewer and water plan sheets, including services, valve, and fire hydrant locations. Sanitary sewer and water plan sheets may be separate if needed for clarity or where required by the City Engineer.
- 9) Water and sewer profiles showing locations of water air releases and invert and rim elevations of sanitary sewer pipes. Sanitary sewer and water profile sheets may be separate if needed for clarity or where required by the City Engineer. Storm sewer and other private utilities shall be shown for reference including crossings within profiles.
- 10) Landscape plan including plants, trees, sidewalks, bikeways, trails, driveways, retaining walls, irrigation, and lighting, outside of parks and trail facilities. Streetlight, signage and water meter locations shall be shown for conflict identification.
- 11) Lighting and Photometric plans shall be designed by a licensed electrical engineer or electrician. Plans shall call out street light locations, spacing, and type of luminaires.
- 12) Signage and striping plan showing locations and types of street signage and striping. This plan may be included on other sheets provided that it is legible.
- 13) Parks, Trails, and Recreation plans including trails, playgrounds, amenities and fixtures, signage, landscaping, and maintenance and safety requirements.

1.07 Requirements for Traffic Control Plans

A. General Requirements

- 1) Site specific Traffic Control Plans are required to be included in Final Engineering submittals when planned work will occur within existing roads. The plans will be used to prove construction feasibility and identify other potential risks or concerns with adjacent

developments, improvements, projects or safety.

- 2) Traffic Control Plans shall include:
 - a. Information on roadway speeds, widths, and tapers
 - b. Information on detours and durations
 - c. Information for pedestrian and bicyclist routing through or around the construction zone
- 3) City Engineer has authority to waive or modify requirements regarding traffic control for this section.
- 4) Applicant may request a deferred Traffic Control Plan submittal to the City Engineer. If approved, all Traffic Control Plans shall be submitted, reviewed and approved prior to the Pre-Construction meeting.

B. Requests for Lane or Road Closures

- 1) Planned work in the public right-of-way requires an encroachment permit (non-City projects) or approval by the City Engineer (City projects).
- 2) Requests for single lane closures of less than 24 consecutive hours may be subject to work hour restrictions.
- 3) Requests for full road closures require approval of both the City Engineer and the City Administrator.
- 4) All requests must be made at least three (3) weeks prior to the planned closure in order for the City to convene to develop a plan with appropriate notice to all affected agencies.

1.08 Requirements for Public and Private Street Improvement Plans

A. Plan Views shall show the following:

- 1) Right-of-Way, property, tract, and easement lines (existing and proposed). Tract naming shall be consistent with the naming on the preliminary plat or preliminary site plan.
- 2) Subdivision name, lot numbers, street names, and other identifying labels. Lot numbering shall be consistent with the approved preliminary plat. Subdivision and street names are subject to review and approval of the City Community Development Director.
- 3) Location and stationing of existing and proposed street center lines and curb faces.
- 4) Horizontal alignment and curve data of street center lines and curb returns.
- 5) Existing underground utilities and trees over 6-inches in diameter within and extending 50 feet beyond the construction limits.
- 6) Location of existing buildings, wells, septic tanks, drain fields, fuel tanks, and any other buried structures.
- 7) Match lines with sheet number references.
- 8) Street stationing to be noted at a minimum of 100-foot intervals.
- 9) Top of curb elevations along curb returns at quarter-delta's, and at 100-foot stations.
- 10) Location of the low points of street grades and curb returns.
- 11) Sidewalk locations. This shall include ramps, transitions in location or width, and relationship with driveways.

- 12) Crown lines along portions of streets transitional from one typical section to another.
- 13) Center line stationing of all intersecting streets.
- 14) Location and description of existing survey monuments, including but not limited to: section corners, quarter corners, donation land claim corners, and City bench marks.
- 15) Location of proposed street intersection monument boxes.
- 16) FEMA designated 100-year flood plains and flood ways, or areas of flooding during a 100-year storm event.
- 17) Wetland areas and storm water quality undisturbed corridors (buffer strips).
- 18) Legend.
- 19) Any additional information that the City Engineer deems necessary.

B. Profile Views shall show the following:

- 1) Stationing, elevations, vertical curve data (including curve k factors), and slopes for center of streets or top of curbs. For off-set or superelevation cross-sections, both curbs shall be profiled. Where curbs are not to be constructed, center line of street and ditch inverts shall be shown.
- 2) Original ground along the center line and if necessary, at the edges of the right-of-way if grade differences are significant.
- 3) Center line, top of curb or edge of pavement, and gutter flow lines of existing streets for a distance of at least 200 feet each way at intersections with proposed streets. For stub streets that may be extended in the future, the vertical alignment shall be designed for at least 300 feet beyond the scope of the proposed construction. At the discretion of the City Engineer, additional design information concerning the vertical and horizontal alignment of future street extensions may be required.
- 4) Vertical alignment of streets, including existing center line monumentation.
- 5) The top of curb for all cul-de-sacs, eyebrows and curb returns.
- 6) Existing drainage facilities, including off-site facilities, upstream and downstream that affect the design (i.e., downstream restrictions that back water onto project site). In addition, base flood elevations shall be shown on the profile.
- 7) Profiles for revised ditch and creek flowlines shall extend a minimum of two hundred (200) feet beyond the project, both upstream and downstream. Typical cross sections at fifty (50) foot intervals shall also be submitted.
- 8) Designate structures using alpha or numeric labels on profiles to correspond to plan view notation.
- 9) All existing and proposed sanitary sewer, water, storm lines and other utilities in parallel to or crossing the profile.

1.09 Site Grading Plan

A site grading plan is required as part of the Application for any development that involves the excavation or fill of greater than fifty (50) cubic yards of material. Grading contours (existing & proposed) shall be at no more than 2 foot intervals, shall be labeled with elevations at no more than ten foot intervals, and shall extend off-site a minimum of 50 feet. This sheet shall also note source of information, date of field work, and location of original document, the calculated cut and fill quantities, location of stripping stockpile location of critical areas and buffers, and any additional information

that the City Engineer deems necessary.

A geotechnical evaluation report must be performed and referenced on the plan for site specific geotechnical recommendations. Plans must include from the report recommendations to be followed. A copy of the report must accompany the plan for review and approval by the City Engineer. A modification to this requirement may be submitted to the City Engineer for approval.

If the site is greater than one acre in size, the permit number issued by the Department of Ecology for coverage under the Construction General Stormwater Permit shall be noted on the plans (WAR#).

All soil disturbing construction activity must adhere to the requirements of the City of Stevenson Engineering Standards, approved Erosion Control Plans, and applicable State requirements. A detailed erosion control plan shall be shown in conjunction with the site grading plan.

1.10 Erosion Control Plans

A. Required Components

Erosion control plan drawings shall, at a minimum, include the following:

- 1) Locations, types and applicable dimensions of erosion control measures.
- 2) Applicable details of erosion control measures showing full dimensions and construction information.
- 3) Existing and proposed ground contours.
- 4) Locations and sizes of existing and proposed drainage pipes and channels (labeled as such and with arrows indicating flow direction).
- 5) Construction site entrances/exits.
- 6) Erosion control notes and standard details.
- 7) If the site erosion control plan includes sediment traps or ponds, the applicant shall also submit calculations used for determining trap or pond sizing.
- 8) All planned stockpile locations and associated erosion control measures for stockpiles.

B. Design

Erosion control measures shall be designed in accordance with the Chapter 2 of the City of Stevenson Engineering Standards and the Stormwater Management Manual for Western Washington Manual.

C. Erosion Control Approval

Approval of a construction erosion control plan by the City does not relieve the applicant's responsibility to ensure that erosion control measures are constructed and maintained to contain sediment on the construction site. Erosion control measures shown are considered the minimum required and additional measures may be required as directed by the City Engineer or Development Inspector.

1.11 Requirements for Utility Plans (Water, Storm Drainage, Sanitary Sewer)

A. General Requirements

- 1) In plan view show the location, stationing, materials, and size of all proposed utility lines (water, storm, sanitary) and fire hydrants. Stationing shall be located in relationship to the street stationing at all manholes or other key locations.
- 2) Show all proposed manholes, cleanouts, inlets, and catch basins with all invert and rim elevations.
- 3) For drainage plans, show existing drainage facilities, including off-site facilities, upstream

- and downstream that affect the design (i.e., downstream restrictions that back water onto project site). In addition, base flood elevations shall be shown on the profile.
- 4) Designate structures using alpha or numeric labels on profiles to correspond to plan view notation. For water plans, each fitting/valve shall have attachment type listed (e.g. FL, MJ, FL x MJ, etc.).
 - 5) For water plans, provisions for cross-connection control must be clearly shown on the plans, including any retro-fitting of existing water service connections and existing auxiliary water supplies, conversions to City of Stevenson water service that are required as a condition of development approval, upgrading of existing service connections by replacement of same, and any other cross connection control required by state and local rules and codes.
 - 6) All lengths and dimensions shall be horizontal distances; no slope distances on plans.
 - 7) Indicate type of pavement restoration required (if working in existing streets).
 - 8) Dimension existing and new utility locations from right-of-way line and/or property line. For water plans, drawings shall reference distance to nearest existing valve/hydrant from new point of connection to existing water main.
 - 9) Show existing manholes or give reference distances to existing manholes near project including manhole number and invert/rim elevations
 - 10) List vertical datum on plan and show benchmark to be used for vertical control during construction.
 - 11) The developer/contractor is responsible for sending a letter and preliminary plan to utility companies to inform them of new construction and for requesting as-built information for incorporation into plans. At a minimum the following utilities shall be contacted:
 - Cable television
 - Natural gas
 - Power
 - Telephone/fiber optic
 - Skamania County Public Utility District
 - 12) Draft plans shall be sent to the above listed utilities to allow coordination of projects.

B. Plan View

- 1) List pipe size and material alongside of pipe, e.g. 8" PVC.
- 2) Pipe length is to be based on horizontal distance between centers of manholes.

C. Profile View

- 1) List pipe length, size, material and slope to 4 decimal places (ft. per ft.), e.g. 150 l.f. – 8" PVC S=0.0125.
- 2) Slope based on invert elevation out of upstream manhole, invert elevation into downstream manhole, and horizontal distance between center of manholes.
- 3) Provide profiles for existing and proposed storm sewer and sanitary sewers. Profiles shall also be provided for new sewer force mains and new water mains.
- 4) Show all existing and proposed sanitary sewer, water, storm lines and other utilities crossing the profile.
- 5) For drainage plans, profiles for revised ditch and creek flowlines shall extend a minimum

of two hundred (200) feet beyond the project, both upstream and downstream. Typical cross sections at fifty (50) foot intervals shall also be submitted.

1.12 Requirements for Supplemental Submittal Information

A. Storm Drainage Technical Information Report (TIR)

The TIR shall be a comprehensive report that contains all technical information and analysis necessary to complete the final engineering plans based on geotechnical, hydrologic, hydraulic, and water quality design. The TIR shall be comprised of the minimum following items:

- Table of Contents
- Project Overview
- Summary of Minimum Requirements and how each is met
- Flow control analysis and design
- Runoff treatment analysis and design
- Source control
- Wetland protection
- Conveyance system analysis and design
 - Where inlet spacing or roadway width parameters are changed from the standard, a spread analysis will be required to be performed meeting requirements of the WSDOT Hydraulics Manual (current edition).
- Reports used in design and reference for the design
- Operations and Maintenance manual
- Appendices
 - This section shall include all program calculation outputs, runoff drainage systems, areas contributing flow to each inlet must be computed separately and each inlet with contributing area shall be designated and shown on an accompanying contour map work sheet, basin/catchment maps conforming with model and plans in a way that clearly ties all elements together, initial time of concentration calculation with assumptions listed and charts or nomographs used shall be included with drainage calculations.

A table of the primary parameters used in modeling shall be included in the report. This table shall include, for and pre- and post- development, at a minimum, time of concentration, impervious area percentages, average curve numbers, basin areas, and flows.

The TIR shall address all minimum requirements as required by the 2019 Stormwater Management Manual for Western Washington, and as amended by Chapter 4 herein.

B. Other information to be shown on the construction drawings or the other submittals include:

- 1) The design assumptions for each street (ex: traffic coefficient, R-value).
- 2) The design elements such as:
 - Street classification;
 - Design speed;

- Superelevation;
 - Average Daily Traffic (ADT) or Design Hourly Volume (DHV).
- 3) Structural construction plans and the necessary calculations shall be submitted for proposed structures (ex: walls, box culverts, bridges).
 - 4) Any additional information that the City Engineer deems necessary to review the plans and assure compliance with design standards.

C. Detail sheets.

- 1) Detail sheets shall be provided showing all applicable standard notes and details.
- 2) City of Stevenson standard details shall be used when available.
- 3) WSDOT standard plans may be used for any item for which the City does not have a detail.
- 4) If a detail from another agency is desired for use, it shall be requested and approved via the Design Modification Process (see Section 1.17).

1.13 Review Procedure

Electronic copies of complete plans shall be submitted to the City for review. Plans shall be complete and shall be stamped and signed by the developer's engineer. The complete set of plans shall include planning sheets (i.e. landscape, planting, site plan, illumination, etc.) combined with engineering sheets. Electronic copies of supporting information and documentation, such as technical information report, geotechnical report, preliminary plat, and water system calculations, shall also be submitted.

Electronic copies of supplemental review documents including but not limited to Geotechnical Report, Critical Area and Mitigation Report, and current NPDES Permit for the project, U.S. Army Corps of Engineers Permits and/or Ecology Wetland impact permits, WSDOT concurrence/approved documents including hydraulic reports and plans, and any other related or applicable permit shall also be submitted for review and confirmation approvals have been provided.

Upon completion of the detailed review by the City, the City will return an electronic set of redlined plans and documents. After the developer's engineer has completed all revisions, an electronic copy of all revised plans and supporting information, as well as a comment response letter shall be returned to the City on each iteration of plan review.

Following concurrence for approval of plans and calculations by the City Engineer and following the signing of approval of the cover sheet by Skamania County Fire Marshal and WSDOT (as applicable), the developer's engineer shall submit the complete compiled set of final plans for Planning/Community Development (site plan and addressing) and the City Engineer's approval signature. The complete compiled set shall include any previously approved sheets from Community Development. The City Engineer will approve the full set only after Planning has stamped approval of the site plan.

Plan review priority will be given to plans submitted for final review. This plan review and approval is valid for three (3) years for Commercial (non-residential) and five (5) years for Residential from the date of Engineering Plan approval. Extensions to the permit may be made by the City Engineer in extenuating circumstances, upon written request by the Developer, but may not be extended past the expiration date of Preliminary Land Use approval.

Plan approval means that the plans have been reviewed for reasonableness and compliance with minimum City specifications and standards. This approval does not supersede those standards and specifications, unless specifically varied by the City. Plan approval does not relieve the developer's engineer from responsibility for errors, omissions or deficiencies in the plans.

Please note that Final Engineering plan approval for construction cannot be released until all other reviewing agencies have provided approvals and/or permits.

Once engineering approval has been received, the applicant shall identify a contractor and contact the City's Development Review Coordinator to schedule a preconstruction conference.

1.14 As-Built Drawings

Following completion of construction, the developer's engineer shall submit an electronic copy of the as-built drawings in PDF format to the City for review. After City review and approval of the as-built drawings the developer's engineer shall submit an electronic file of final as-built drawings in PDF format.

As-built drawings shall contain all revisions to the previously approved construction plans. The cover sheet of the as-builts shall be accompanied by the following statement next to a new stamp and signature from the developer's engineer:

"I, (Name of Developer's Engineer), certify that I, or personnel under my supervision, have reviewed field data from a registered professional land surveyor for the stormwater, sanitary sewer and water utilities as show in these record drawings."

As-built information shall be obtained and provided to the developer's engineer by a surveyor licensed in the State of Washington. The as-built drawings shall include all the approved plan information plus the revised data as obtained by the as-built survey and shall include the landscaping & irrigation and lighting & electrical plan sets. The design information shall be lined out where revised by the addition of the as built data. All as built information shall be made electronically; no handwritten information will be accepted. Additional as built information may be required by the City Engineer.

Each sheet of the as-constructed drawings, including the cover sheet, shall be stamped "As-Built" or "Record Drawing", and signed and dated by the developer's engineer. This signature constitutes a certification that the public and private improvements, grading, and other elements of the engineered drawings have been completed in accordance with the City approved plans and to the standards of the City.

Submission of as-built drawings shall be made prior to final inspection of a completed project.

1.15 Professional Qualifications

Professionals in the technical fields of Civil Engineering, Electrical Engineering, Geotechnical Engineering, Landscape Architecture, Soils Engineering, Structural Engineering, and Surveying who prepare or are responsible for the preparation of drawings, plans, specifications, technical reports, etc. for the process of obtaining required permits/approvals shall be currently licensed or registered in the State of Washington and qualified by both experience and educational background in the specific technical areas as warranted by the specific needs of the proposed development project.

1.16 Changes to Standards

From time to time changes may be needed to add, delete, or modify the provisions of these standards. The City Engineer may approve technical changes to these Standards to be incorporated into the existing provisions. Comprehensive revisions to the Standards shall be proposed by the City Engineer and adopted by the City Council.

1.17 Design Modifications Process

A. Submittal

Requests to modify City Standards shall be submitted in writing by the developer's engineer, to the City Engineer. This written request shall state the desired modification(s), the reason(s) for the request(s) and a comparison between the specification(s), standard(s), and the modification(s).

The City Engineer may require any request for modification or variance of City Standards to be documented with reference to nationally accepted specifications/standards.

B. Review

The request to modify shall be reviewed by the City Engineer, who shall consult the appropriate review authorities and make one of the following decisions:

- 1.) Approve as is,
- 2.) approve with changes,
- 3.) or deny with an explanation.

The modification, if approved, is for project specific use. Approval of a request shall not constitute a precedent.

C. Appeal

The applicant may appeal the City Engineer's decision to the City Administrator.

D. Criteria for Modification of Standards

The City Engineer may grant a modification to the adopted specifications or standards when any one of the following conditions are met:

- 1) The specification or standard does not apply in the particular application.
- 2) Topography, right-of-way, or other geographic conditions impose an economic hardship on the applicant and an equivalent alternative which can accomplish the same design is available that does not compromise public safety or accessibility for the disabled.
- 3) A change to a specification or standard is required to address a specific design or construction problem which if not enacted will result in an undue hardship.
- 4) The requirement for construction of street frontage improvements along a residential short plat land subdivision would be unnecessary and inconsistent with the existing street.

1.18 Errors and Omissions

At the discretion of the City, any significant errors or omissions in the approved plans or information used as a basis for such approvals may constitute grounds for withdrawal of any approvals and/or stoppage of any or all of the permitted work. It shall be the responsibility of the developer to show cause why such work should continue and make such changes in plans that may be required by the City before the plans are reapproved.

1.19 Railroad Crossings

A. General

Crossings of railroad rights-of-way shall be done in a manner which conforms to the requirements of the railroad having jurisdiction. If any bonds and/or certificates of insurance protection are required, they shall be furnished by the Contractor or Owner to the railroad company with the City as an additionally-named insured.

B. Permits or Easements

Crossing agreements, permits, and/or easements for such crossings will be obtained by the applicant and all the terms of such permits or easements shall be met by the Owner and Contractor.

1.20 Penalties

Failure to comply with these Standards will be cause for withholding or withdrawing approval of plans or plats, forfeiture of bond, withholding Temporary and/or Final Certificate of Occupancy, and/or other

penalties as provided by law.