

CITY OF COVINGTON
DESIGN AND CONSTRUCTION
STANDARDS

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CITY OF COVINGTON DESIGN AND CONSTRUCTION STANDARDS

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PURPOSE

The purpose of this publication of the Design and Construction Standards is to provide minimum standards for street and storm drainage design elements. The standards provide for consistency in design and construction of public and private street and drainage projects. They meet the minimum requirements of the motoring, bicycling and pedestrian public. They include safety, convenience, pleasant appearance and economical maintenance. They also provide guidelines for utility locations within the public right-of-way.

This publication cannot provide for all situations. It is intended to help, but not to substitute for competent design by professional engineers, architects and land surveyors. Engineers, architects, land surveyors and contractors should bring the best of skills from their respective disciplines to each project.

The Design and Construction Standards do not unreasonably limit any innovative or creative effort that could result in better quality, cost savings, lower impact or maintainability. The City Engineer will judge designs that depart from these standards on the likelihood that such designs will produce compensating or comparable results.

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CHAPTER 1 GENERAL CONSIDERATIONS

- 1.01 Shortened Designation: These City of Covington Design and Construction Standards will be cited routinely in the text as the "Standards". The City of Covington will be cited routinely in the text as the "City".
- 1.02 Applicability: These Standards shall apply prospectively to all newly constructed street and right-of-way, facilities, both public and private, within the City of Covington. In the event of conflict with other City codes, these Standards and Specifications shall control.

The Standards apply to modifications of street features of existing facilities which are within the scope of reconstructions, required off-site street improvements for land developments, or capital improvement projects when so required by City of Covington or to the extent they are expressly referred to in project plans and specifications. With the exception of lane marking these Standards are not intended to apply to "Resurfacing, Restoration and Rehabilitation" (3R) projects as those terms are defined in the Local Agency Guidelines, WSDOT, as amended; however, the Engineer may at his discretion consider the Standards as optional goals.

The Standards shall apply to every new placement and every planned, non-emergency replacement of existing utility poles and other utility structures within the City of Covington right-of-way.

- 1.03 Severability: If any part of these Standards or Standard Details, as established by ordinance, shall be found invalid, all other parts shall remain in effect.
- 1.04 Responsibility to Provide Street Improvements
- A. Any land development which will impact the service level, safety, or operational efficiency of serving streets or is required by other City code or ordinance to improve such streets shall improve those streets in accordance with these Standards. The extent of off-site improvements to serving streets shall be based on an assessment of the impacts of the proposed land development by the City.
 - B. Any land development abutting and impacting existing streets shall improve the frontage of those streets in accordance with these Standards. The extent of improvements shall be based on an assessment of the impacts of the proposed land development by the City. Urban residential short plats creating only one additional lot to a tax lot with an existing dwelling unit are exempt from providing urban type street improvements but are subject to shoulder improvements as specified in Section 3.07 (Asphalt Shoulders) provided these improvements are consistent with the surrounding streets.
 - C. Any land development that contains internal streets shall construct or improve those streets to these Standards.

- D. The City will not allow subdivisions to be recorded unless there exists a recorded continuous public access to the subdivision except, as provided for in Section 2.06 (Alleys and Private Access Tracts). Nor will the City accept a street for maintenance until the street is directly connected to a City or other publicly maintained street.
- E. All street improvement and development projects shall include pedestrian access as a part of the design. Where existing streets are to be modified, pedestrian facilities shall be as described in Sections 3.03 (Concrete Sidewalks), 3.07 (Asphalt Shoulders), 3.08 (Separated Walkways, Bikeways and Trails) or 3.09 (School Access).
- F. Where new development is proposed adjacent to vacant land likely to be divided and/or developed in the future, the development's street system shall extend to the plat boundary for future extension and to encourage logical vehicular and pedestrian circulation and connectivity. All redevelopment and street improvement projects shall take advantage of opportunities for retrofitting existing streets to provide increased vehicular and pedestrian connectivity.
- G. All commercial and multi-family development shall be designed to allow for cross-access to adjacent properties to encourage shared parking and shared access points on public streets. When cross-access is deemed impractical by the City Engineer on the basis of topography, natural features, or vehicular safety factors, this requirement may be waived provided that appropriate pedestrian connections are provided between adjacent developments or land uses. A minimum distance of 50 feet shall be required between a cross-access way and a driveway entrance or an intersection. A cross-access easement must be recorded prior to issuance of a Certificate of Occupancy for the development.
- H. All existing commercial and industrial occupancies that undergo alterations, additions or remodels that exceed 50% of the assessed valuation, as listed in the King County Assessor's records, structure value, shall improve or install frontage improvements as described in this standard.
- I. The Developer's Engineer shall consider the following guidelines in planning transportation systems:
 - 1. Adequate vehicular and pedestrian access should be provided to all parcels of land.
 - 2. Street patterns and names should be logical, understandable and consistent to satisfy the needs of emergency and delivery vehicles.
 - 3. Vehicular and vehicular/pedestrian conflict points should be minimized. The Developer's Engineer should use Tee-intersections on local access systems. Four-way intersections should be minimized on local access streets.
 - 4. Local access streets should be designed to minimize through traffic movements and excessive speeds.

5. Traffic generators within the project should be considered and the street system designed appropriately.
6. The location of additional access points shall have the concurrence of the Fire District.
7. The Developer's Engineer should consider ease of maintenance when designing public streets and drainage facilities.

1.05 General References: The Standards implement and are intended to be consistent with:

A. Covington Municipal Code, as amended, including:

Title 12	Streets, Sidewalks and Bridges
Title 13	Public Utilities
Title 14	Planning and Development
Title 15	Buildings and Construction
Title 16	Environment
Title 17	Subdivisions
Title 18	Zoning

- B. Currently adopted Stormwater Design Manual.
- C. Current City of Covington Comprehensive Plan.
- D. Current City of Covington Six Year Transportation Improvement Plan.
- E. Adopted Neighborhood Subarea Plans.
- F. City of Covington Parks and Trails Plan.
- G. City of Covington Non-Motorized Transportation Plan.
- H. Current City of Covington Capital Improvement Program.
- I. City of Covington Parks and Open Space Plan.
- J. City of Covington adopted Sub-Basin Plans.
- K. City of Covington Flood Hazard Plan.

1.06 WSDOT/APWA Documents as Primary Design and Construction References: Except where these Standards provide otherwise, design detail, construction workmanship, and materials shall be in accordance with the following publications produced separately by Washington State Department of Transportation (WSDOT), or jointly by WSDOT and Washington State Chapter of American Public Works Association (APWA).

- A. WSDOT/APWA Standard Specifications for Road, Bridge, and Municipal Construction, as adopted herein by City of Covington, current edition as amended. These will be referred to as the "WSDOT Standard Specifications."
- B. The WSDOT/APWA Standard Plans for Road and Bridge Construction, to be referred to as the "WSDOT Standard Plans," current edition as amended.
- C. WSDOT Design Manual, current edition as amended.
- D. WSDOT Hydraulics Manual, current edition as amended.
- E. City Design Standards for the Construction of Urban Arterial and Collector Streets, adopted per RCW 35.78.040, current edition as amended.

1.07 Other Specifications: The following shall be applicable when pertinent, when specifically cited in the Standards, when required as a development condition or when required by state or federal funding authority.

- A. Local Agency Guidelines, WSDOT, as amended.
- B. Guidelines for Urban Arterial Program, WSDOT, as amended.
- C. Design criteria of federal agencies including the Federal Housing Administration, Department of Housing and Urban Development; and the Federal Highway Administration, Department of Transportation.
- D. A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials (AASHTO), current edition when adopted by WSDOT.
- E. Standard Specifications for Highway Bridges, adopted by AASHTO, current edition.
- F. U. S. Department of Transportation Manual on Uniform Traffic Control Devices, "MUTCD", as amended and approved by Washington State Department of Transportation, current edition.
- G. Guide for the Development of Bicycle Facilities, adopted by AASHTO, current edition.
- H. American Society for Testing and Materials (ASTM).
- I. Associated Rockery Contractors, Standard Rock Wall Construction Guidelines.
- J. Metro Transportation Facility Design Guidelines, current edition.

1.08 Design Variances and Design Deviations

- A. Where right-of-way constraints or other site factors limit a developer or design engineer's ability to meet the minimum requirements of these standards and/or the drainage manuals, they may choose to apply for a Design Variance.

A Design Variance request is a stand-alone document requiring enough information for the City Engineer and the Director of Public Works to make an informed decision of approval or denial. The decision of approval or denial is a Type 2 decision, made by the Director of Public Works, in accordance with CMC Chapters 14.30 and 14.35. As such, a Design Variance will require a Notice of Permit Application and a Notice of Final Decision, in accordance with the procedure for a Type 2 application.

- B. In accordance with CMC 12.60.050, a variance from these Standards and/or in accordance with CMC 13.25.050, a variance from the requirements of the stormwater manual may be granted by the City Engineer upon evidence that such a variance meets the following criteria:

1. Design Variance is in the public interest,
2. Requirements for safety, function, fire protection, appearance and maintainability, based on sound engineering judgment, are fully met, and
3. Design Variance does not conflict with nor modify any Condition of Approval for the development.

- C. Any anticipated Design Variances from these Standards which do not meet the International Fire Code shall also require concurrence by the Fire Marshal.

- D. Design Variance requests should be proposed during the Pre-Application Meeting, as outlined in Section 10.02A (1) for subdivision applications or Section 10.02B (1) for site development (commercial) applications, and applied for with the application submittal or prior to any public hearing. Design Variances shall be approved prior to the approval of any engineering plans for construction.

- E. Design Variance request procedures:

1. Complete a Design Variance Request form (forms are available from the City of Covington Permit Services department), schedule an intake appointment with the Permit Services department and pay the associated fee as stated in the current Fee Resolution.
2. A Notice of Permit Application will be provided to the public, in accordance with CMC 14.40.010. If the Design Variance is submitted with a project application, its Notice of Permit Application can be issued concurrently with the associated project's Notice of Application.
3. The application and any attached documents will be routed for review to the Development Review Engineer. The Development Review Engineer will

attach a recommendation and forward the documents to the City Engineer for review and determination.

4. The City Engineer will make a determination in writing, to include facts of finding and a decision regarding the variance request. The City Engineer may apply conditions to the approval of the variance. These additional conditions may not have been required in the preliminary plat approval.
 5. The City Engineer will forward the documents to the Permit Services department for transmission to the applicant and the official project file.
 6. A Notice of Final Decision will be provided to the public, in accordance with CMC 14.40.030.
- F. Any appeal to the variance determination may be presented to the Hearing Examiner, in accordance with CMC 14.45.
- G. At the discretion of the City Engineer, a Design Deviation may be requested for a minor design modification. A written narrative will be required summarizing the rationale for the feature that deviates from the applicable design standard. Included in the narrative shall be sufficient information to describe the problem, the constraints and the trade-offs at a level of detail that provides a defensible professional judgment. This justification is not intended to have the same level of formality as a Design Variance.
- H. Once a Design Variance or Design Deviation is approved, it applies only to that project.
- I. Questions regarding interpretation of these Standards may be directed to the City Department of Public Works at 253-638-1110.
- 1.09 Errors and Omissions: At the discretion of the City Engineer, any significant errors or omissions in the approved plans or information used as a basis for such approvals may constitute grounds for withdrawal of the approvals and/or stoppage of any or all permitted work. It shall be the responsibility of the developer, engineer or contractor to demonstrate why such work should continue, and make such changes in plans that may be required by the City Engineer before the plans are re-approved.
- 1.10 Financial Guarantees and Penalties: Failure to comply with these Standards may result in denial of plan or development permit approval, issuance of a Stop Work Notice, revocation of prior approvals, legal action for forfeiture of financial guarantee, code enforcement, and/or other penalties as provided by law.
- A. Financial Guarantees: All development projects and permits granted pursuant to Titles 12, 13, 14, 15, 17 or 18 of the Covington Municipal Code (CMC) shall post a financial guarantee with the City in accordance with applicable City Codes and specifically with CMC Chapter 14.105.

The financial guarantee can be posted in different forms, such as a bond on behalf of a bonding company, a letter of credit (from an accredited bank), an assignment of funds (held by an accredited bank), or a cash deposit to be held by the City. Forms for posting a financial guarantee shall be provided by the City on their approved form. Any changes to the language of the form by the developer shall be reviewed by the Director, City's Finance Director and City Attorney.

1. Performance: The developer or contractor shall furnish a performance surety which shall be conditioned upon faithful completion of that portion of the work performed pursuant to the permit. The amount of the surety shall be in accordance with the bonding schedule (Bond Quantity Worksheet) contained in the standards as approved by the City Engineer. The City Engineer shall review and provide approval of the submitted amount.
 2. Maintenance: The developer or the contractor shall furnish a maintenance surety, which shall be conditioned upon faithful maintenance of all work for a two-year period from the final acceptance of the work by the City.
- B. Hold Harmless Clause: The Developer shall indemnify and hold harmless the City and City Engineer, and their agents and employees, from and against all damages, losses, and expenses.
- C. Developer's Public Liability and Property Damage Insurance: The developer shall not commence work until he has furnished evidence of insurance and nor shall the developer allow any contractor or subcontractor to commence work on his contract or subcontract until the same insurance requirements have been complied the contractor or subcontractor. Approval of the insurance by the city shall not relieve or decrease the liability of the developer.

The developer shall maintain, during the life of the permit or approval, comprehensive general and automobile liability insurance. The insurance shall include the city as an additional named insured. All insurance policies shall be endorsed to provide that the policy shall not be canceled or reduced in coverage until after 10 days prior written notice.

- D. Compensation and Employer's Liability Insurance: The developer shall maintain workmen's compensation insurance or, as may be applicable, maritime workmen's insurance, as required by state or federal statute for all of his employees to be engaged in work under the permit. In case any such work is sublet, the developer shall require the contractor or subcontractor to provide workmen's compensation insurance or maritime workmen's insurance for all of the employees to be engaged in such work. The developer's labor and industries account number shall be noted in the application.

In the event any class of employees engaged in work at the site of the work is not covered under the workmen's compensation insurance or maritime workmen's insurance, as required by state and federal statute, the developer shall maintain and shall require each contractor or subcontractor to maintain employer's liability insurance with a private insurance company for limits as established by the City, and furnish satisfactory evidence of same.

1.11 Changes to this Manual: The City Engineer may incorporate minor changes to these Standards or the Standard Details as they become necessary. General updates will typically include an opportunity for public review and comments.

1.12 Meaning of Terms: The following terms and their meanings are related specifically to these standards. Additional terms can be found in the applicable title of the City Code:

“3R”: Resurfacing, Restoration and Rehabilitation.

“ACP”: Asphalt Concrete Pavement.

"Alley": A thoroughfare or right-of-way, usually narrower than a street, which provides access to the rear boundary of two or more residential properties and is not intended for general traffic circulation; privately maintained.

"Auxiliary Lane": The portion of the street adjoining the traveled way for parking, turning or other purposes supplementary to through-traffic movement.

“Best Management Practice (BMP)”: The schedule 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 water of Washington State.

"Bulb": A round area for vehicle turnaround typically located at the end of a cul-de-sac street.

“Bulb-out (curb extension)”: A traffic calming measure intended to slow the speed of traffic and increase driver awareness, particularly in built-up and residential neighborhoods. They also allow pedestrians and vehicle drivers to see each other when vehicles parked in a parking lane would otherwise block visibility.

“Capitol Improvement Project (CIP)”: A project prioritized and scheduled as a part of an overall construction program or the actual construction program.

“CDF”: Controlled Density Fill.

"City Engineer": City of Covington Public Works Director or City Engineer, having authorities specified in RCW 35 and 35A, along with the applicable authorities of the City Engineer as specified in RCW 36.75.050 and 36.80, or his/her authorized representative.

“Clear Zone”: The total roadside border area starting at the edge of the traveled way available for use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope and/or a clear run-out area.

“Closed Depression”: An area which is low-lying and either has no surface water outlet or such a limited outlet that during storm events the area acts as a retention basin.

“Critical Area”: At a minimum, areas which include wetlands, areas with a critical recharging effect on aquifers used for potable water, fish and wildlife habitat conservation

areas, frequently flooded areas, geologically hazardous areas, including unstable slopes, and associated areas and ecosystems.

“Cross-Access”: A connection between multiple commercial properties, granted by mutual easement, for shared parking and vehicular traffic between the properties.

"Cul-de-sac": A short street having one end open to traffic and the other temporarily or permanently terminated with a vehicle turnaround.

“Curb Ramp”: A short, depressed section of curb and sidewalk, normally placed at street intersection, designed to facilitate pedestrian travel of physically disadvantaged persons.

“Datum”: A set of reference points on the earth’s surface against which position measurements are made. Horizontal datums are used for describing a point on the earth’s surface. Vertical datums measure elevations or depths.

"Design Speed": The speed approved by the City Engineer for the design of the physical features of a street as established by Sections 2.03 (Private Streets) and 2.04 (Half Streets) for residential and commercial access streets or equal to 5 miles per hour above the current or expected posted speed limit for streets designated as arterials in the federal functional classification system.

"Design Storm Event": The prescribed hyetograph and total precipitation amount, for a specific duration recurrence frequency, used to estimate runoff for a hypothetical storm of interest or concern for the purposes of analyzing existing drainage, designing new drainage facilities or assessing other impacts of a proposed project on the flow of surface water. (Hyetograph – a graph of percentages of total precipitation for a series of time steps representing the total time during which the precipitation occurs)

“Development Review Engineer”: City of Covington Engineer or authorized representative responsible for the review and approval of civil engineering submittals (stormwater, grading, roadways, etc.) associated with land developments.

"Developer/Sponsor ": Any person, firm, partnership, association, joint venture, corporation or combination thereof, financially responsible for a subject project, who undertakes to improve residential, commercial, or industrial property or to subdivide for the purpose of resale and profit.

“Drainage Report”: A report prepared by the project engineer that documents the basis of design for all proposed stormwater management facilities.

“Drawing or Design Drawing”: Shall mean those illustrations found in the appendices of this standard.

"Driveway": A privately maintained access to residential, commercial or industrial properties.

“Dwelling Unit”: One or more rooms designed for occupancy by a person or family for living and sleeping purposes, containing kitchen facilities and rooms with internal accessibility, for use solely by the dwelling's occupants; dwelling units include but are not

limited to bachelor, efficiency and studio apartments, factory-built housing and mobile homes.

“Easement”: An authorization by a property owner for the use by another person of a designated part of the owner’s property for a specified purpose.

“Engineer/Developer’s Engineer”: Any person or persons, firm, partnerships, or corporation legally authorized and currently licensed to practice Civil Engineering in the State of Washington who prepares or submits plans and specifications to the City of Covington for approval.

“Erosion and Sedimentation Control”: Any temporary or permanent measures taken to reduce erosion, control siltation and sedimentation, and ensure that sediment-laden water does not leave the site.

"Eyebrow": A partial bulb located adjacent to the serving street that provides access to lots and serves as a vehicle turnaround.

"Frontage (Street Frontage)": Any portion of a lot or combination of lots that directly abuts a public right-of-way.

“Geotechnical Engineer”: A practicing geotechnical/civil engineer, licensed as a professional Civil Engineer with the State of Washington, who has at least four years of professional employment as a geotechnical engineer in responsible charge, including experience with landslide evaluation.

“Grind and Overlay”: Milling and/or grinding the existing roadway surface, the entire pavement width (curb to curb) to a depth of 1 1/2 ” and overlaying surface with a Hot Mix Asphalt.

"Half-Street": Street constructed along edge of development, utilizing a portion of the regular width of right-of-way and permitted as an interim facility pending construction of the other half of the street by the adjacent owner.

"Joint-Use Driveway Tract": A jointly owned and maintained tract or easement serving two properties.

“Land Disturbing Activity”: Any activity that results in a movement of earth or a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to clearing, grading, filling, excavation and compaction associated with stabilization and/or road construction.

"Landing": A street or driveway approach area to any public or private street.

"Loop": Street of limited length forming a loop, having no other intersecting street, and functioning mainly as direct access to abutting properties. A loop may be designated for one-way or two-way traffic.

"Lot (Parcel)": A physically separate and distinct parcel of property that has been created pursuant to the provisions of the Covington Municipal Code or to any previous laws governing the subdivision, short subdivision or segregation of land.

"Off-Street Parking Space": An area accessible to vehicles, exclusive of streets, sidewalks, and other pedestrian facilities, that is improved, maintained and used for the purpose of parking a motor vehicle.

"Pavement Width": Paved area on shoulder-type streets or paved surface between curb faces or gutter flow lines on all other streets, as depicted on Standard Details.

"Pipe Stem": A strip of land having a width narrower than that of the lot or parcel to be served and is designed for providing access to that lot or parcel.

"Planting Strip": The space between the edge of pavement or back of curb and the sidewalk.

"Private Access Tract": A privately owned and maintained tract providing vehicular access to two remote residential properties and where the two adjoining lots to the access tract that abut a public way shall also gain access via the access tract.

"Private Street": A privately owned and maintained access provided for by a tract, easement or other legal means, typically serving three or more potential dwelling units.

"Professional Engineer": A professional civil engineer licensed to practice in the State of Washington.

"Public Street": Publicly owned facility-providing access, including the street and all other improvements, inside the right-of-way.

"Public Way": A publicly owned access to include but not be limited to a street, cul-de-sac, eyebrow, etc.

"Record Drawings": The plan set, which is certified to contain a true and accurate representation of the actual field conditions for the project during construction or upon completion of construction.

"Remote Residential Properties": A property not abutting a public way.

"Resource Lands": Areas so designated in City of Covington Comprehensive Plan and as implemented through community plans and area zoning; characterized by long-term agriculture, forestry, and mining.

"Reviewing Agency": City of Covington or its successor agency for plats and proposed developments.

"Right-of-Way": Land, property, or property interest (e.g., an easement), usually in a strip, acquired for or devoted to transportation purposes.

"Shoulder": The paved or unpaved portion of the street outside the traveled way that is available for emergency parking or non-motorized use.

“Shared Access”: An access or driveway provided to multiple commercial properties, granted by mutual easement, for common ingress and egress, used to minimize the number of driveways fronting a public street and to minimize the vehicular traffic across pedestrian walkways.

“Sidewalk”: A facility provided for pedestrian movement, usually segregated from vehicular traffic by a curb and a planter strip.

“SOP”: Standard Operating Procedure.

“Speed Bump or Hump”: Not allowed within City of Covington City limits, as outlined within SOP.

“Street”: A facility providing public or private access including the street and all other improvements inside the right-of-way. Pavement width plus any non-paved shoulders.

“Stormwater Management Facilities”: Constructed facilities that collect, convey, treat, detain or retain stormwater runoff. Stormwater management facilities may include such elements as concrete gutters, catch basins, manholes, storm pipes, Low Impact Development BMP’s, detention or retention ponds, etc.

“Surety”: A financial guarantee by the developer, naming the City of Covington as beneficiary, that infrastructure required for a project will be constructed and certified according the approved plans, specifications and all applicable Standards.

“Surveyor”: A professional land surveyor registered and licensed by the State of Washington.

“Tract”: An area of land reserved for specified uses including, but not limited to reserve areas, recreation, open space, sensitive areas, surface water retention, utility facilities and access. Tracts are not considered lots or building sites for the purposes of residential dwelling construction.

“Traffic Control”: Safe flow of traffic through an area in which development activities are being performed in accordance with the Manual on Uniform Traffic Control Devices as currently adopted. Documentation shall include a plan defining all materials, traffic control devices, and activities required to accomplish this task.

“Traffic Engineer”: City of Covington Traffic Engineer responsible for design, operation and maintenance of traffic control devices. These authorities are vested in the Public Works Director or his/her designee when no Traffic Engineer is appointed on staff.

“Traffic Impact Analysis (Study)”: A specialized study that projects future transportation conditions and recommends methods to offset both the impacts of the increase in traffic volumes and the changes in traffic operations due to land development.

“Traveled Way”: That part of the street made for vehicle travel, excluding shoulders and auxiliary lanes.

"Urban Areas": Areas so designated within Urban Growth Boundaries, and as implemented through community plans and area zoning; characterized by denser commercial/industrial and residential development.

"Utility": A company providing public service such as gas, electric power, telephone, cable, water, sewer, storm drainage or cable television, whether or not such company is privately owned or owned by a governmental entity.

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CHAPTER 2 STREET TYPES AND GEOMETRICS

2.01 Street Classifications

A. Function is the controlling element for classification and shall govern right-of-way, street width and street geometrics. Other given elements, such as access, spacing, ADT, etc. are merely typical. City streets are classified functionally as presented in Tables 2.02 A and 2.02 B and as shown in the Standard Details.

1. Principal Arterial – The principal arterial system serves the major centers of activity of urbanized areas. They are the highest traffic volume corridors and have the longest trip desires. The principal arterial system carries most of the trips entering and leaving the urban area and most of the through movements bypassing the central city. This street classification serves significant intra-area travel, and includes travel between central business districts and outlying residential areas, between major inner-city communities, between major suburban centers, and provides continuity for rural arterials that intercept the urban boundary. The principal arterial system frequently carries essential intra-urban and intra-city bus routes.

Under this definition, the City of Covington has designated one principal arterial:

SE 272nd Street (also known as: SR516 and Kent Kangley Road)

SE 272nd Street is an established principal arterial. Improvements may include widening, resurfacing, restoration, addition or relocation of utilities, addition of right-of-way, etc. No other streets will be classified as principal arterials within the current boundaries of the City of Covington.

2. Minor Arterial – The minor arterial street system interconnects with and augments the principal arterial system. It provides trips of moderate length at a lower level of travel mobility and distributes travel to smaller geographic areas than principal arterials. Minor arterial systems place more emphasis on land access and include urban connections to rural collector roads, where such connections have not been classified as principal arterials. Such facilities may carry local bus routes and provide intra-community continuity, but ideally does not penetrate identifiable neighborhoods.

Under this definition, the City of Covington has designated three minor arterials:

SE 240th Street
SE 256th Street
Covington Way SE

These streets are established minor arterials. Improvements may include widening, resurfacing, restoration, addition or relocation of utilities, addition of right-of-way, etc. No other streets will be classified as minor arterials within the current boundaries of the City of Covington.

3. Collector Arterial – The collector arterial system generally provides the same facilities as minor arterials for lower traffic volumes and movements within smaller areas, as well as commercial and industrial areas. It serves a high proportion of local traffic requiring direct access to abutting properties, but serves little “through traffic”. Collector arterials provide the link between neighborhoods, commercial and industrial areas, and larger arterial systems.

Under this definition, the City of Covington has designated nine collector arterials:

156th/160th Avenue SE
164th Avenue SE
165th Place SE/168th Place SE
172nd Avenue SE
174th Place SE
180th Avenue SE
204th Avenue SE
SE 270th Place
SE Wax Road

These streets are established collector arterials. Improvements may include widening, resurfacing, restoration, addition or relocation of utilities, addition of right-of-way, etc. No other streets will be classified as collector arterials within the current boundaries of the City of Covington.

4. Neighborhood Collector – The neighborhood collector system provides land access service and traffic circulation within residential neighborhoods. It differs from arterial street systems in that the neighborhood collector system may penetrate residential neighborhoods, distributing trips from the arterials through the area to their ultimate destinations. The neighborhood collector also collects traffic from local access streets and channels it into the arterial system. The neighborhood collector may also carry local bus routes.

Under this definition, the City of Covington has designated the streets in the following neighborhoods as neighborhood collectors:

SE 244th Street in North Parke
SE 251st Street in Tamarack and Emerald Downs
SE 260th Street in Fairfield and Savana
172nd Avenue SE and 175th Way SE in Suncrest and Foxwood
SE 268th Street, SE 267th Street and SE 264th Street
SE 262nd Place, Timberlane Way SE and 192nd Avenue SE in Timberlane
191st Avenue SE in Timberlane

194th Avenue SE, SE 262nd Street and 199th Avenue SE in Timberlane
201st Avenue SE, 199th Avenue SE and 200th Avenue SE in Tall Timbers
160th Avenue SE in Fairfield

These streets are established neighborhood collectors. Improvements may include widening, resurfacing, restoration, addition or relocation of utilities, addition of right-of-way, etc. Additional streets will be classified as neighborhood collectors as larger developments are platted and in-fill developments create larger, contiguous neighborhoods within the City of Covington.

5. Local Access Streets – Local access streets allow for direct access to abutting land and connections to higher order systems. They offer the lowest level of mobility and usually contain no bus routes. Local access streets typically discourage service to through-traffic movement.
 - a. Commercial/Industrial – Commercial or industrial local access streets provide circulation and access to parking and loading sites, and abut retail stores, warehouse facilities, manufacturing facilities, processing plants, dense multi-family dwellings, office and professional buildings.
 - b. Residential – Residential access streets provide circulation through single-family residential neighborhoods and access to individual lots.
 - i. Sub-Collector – Sub-collector streets provide circulation within neighborhoods and connections to neighborhood collectors and arterials. They have the potential to serve up to 100 single-family dwelling units.
 - ii. Sub-Access – Sub-access streets provide connection to sub-collector streets, but do not support through-traffic. They include short through streets, cul-de-sacs and loops. Sub-access streets have the potential to serve up to 35 single-family dwelling units.
 - iii. Minor Access – Minor access streets include permanent cul-de-sacs and loops. They have the potential to serve up to 16 single-family dwelling units.
6. Private Street – Private streets are privately owned vehicular access routes serving three or more lots, parcels or tracts, which do not have frontage on a public street right-of-way. The City of Covington does not maintain private streets.

B. Terrain is a basis for further classification of geometric requirements.

1. Flat terrain is that condition where roadway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expense. The slope of the existing terrain is from 0 to 5%.

2. Rolling terrain is that condition where the natural slopes consistently rise above and fall below the roadway grade line. Normal roadway alignment is restricted some by occasional steep slopes. The slope of the existing terrain is from 5 to 15%.
3. Mountainous terrain is that condition where longitudinal and traverse changes in ground elevation, with respect to the roadway, are abrupt and where the roadbed is obtained by frequent benching or sidehill excavation. The slope of the existing terrain exceeds 15%.

Terrain classification pertains to the general character of the specific route corridor. Streets in valleys or passes of mountainous areas that have all the characteristics of streets traversing flat or rolling terrain should be classified as flat or rolling. In cases where terrain classification is in question, the City Engineer shall make the final decision. Terrain classification will be determined at the pre-design meeting, as described in Section 10.02.

2.02 Public Streets

- A. Standards for design and construction of new or reconstruction of existing arterial, commercial and industrial streets in the City of Covington shall follow the criteria shown in Table 2.02 A, Arterial and Commercial/Industrial Street Design Elements. Standards for design and construction of new or reconstruction of existing residential access streets shall follow the criteria shown in Table 2.02 B, Residential Access Street Design Elements. AASHTO's "A Policy on Geometric Design of Highways and Streets" shall govern all design elements not shown in these standards.
- B. The Developer's Engineer should consider certain factors when specifying the classification of a new public street, including but not limited to the street function, traffic volume, terrain, density of the proposed or existing development, the surrounding developments, the proposed or existing zoning, the existing roads in the immediate area, the cost relationship of the proposed improvements, and other such factors deemed significant of the proposal being reviewed in light of public health, safety and welfare. In cases where street classification, street width and/or right-of-way width is in question, the City Engineer shall make the final decision.
- C. Additional or alternate standards may be required for design and construction of new or reconstruction of existing streets within the downtown zones. Refer to the City of Covington Comprehensive Plan.

Table 2.02 A

Arterial and Commercial/Industrial Street Design Elements

Design Elements¹	Classification	Principal	Minor	Collector	Commercial/ Industrial
ADT ² (x 1000)		> 30	15 - 30	5 - 15	-
Design Speed (mph)		50	50	40	30
Horizontal Curve Radius (ft) ³	Minimum	1,200	760	465	250
Superelevation Rate (%)	Maximum	6	6	6	6
Centerline Grade (%) ⁴	Minimum	0.5	0.5	0.5	0.5
	Maximum	6	6	6	6
Stopping Sight Distance (ft) ³	Minimum	650	475	325	200
Entering Sight Distance (ft) ³	Minimum	810	685	555	430
Passing Sight Distance (ft) ³	Minimum	2,100	1,800	1,500	1,100
Crest Vertical Curves (K) ^{3,5}	Minimum	150	60	60	40
Sag Vertical Curves (K) ^{3,5}	Minimum	100	60	60	50
Street Width (ft) ^{6,7}	Minimum	94	70	48	48
Right-of-way Width (ft) ⁷	Minimum	126	100	80	80
Intersection Return Radius (ft) ⁸	Minimum	35	35	35	35
Intersection R-O-W Radius (ft)	Minimum	30	30	30	30

Notes:

1. Geometric design shall be consistent with AASHTO's "A Policy on Geometric Design of Highways and Streets," current edition.
2. Average Daily Traffic (ADT) includes forecasted future development, if future street extension is possible.
3. Design elements based on the assumption that arterial streets will not be designed in areas of steep terrain (> 5%).
4. Maximum centerline grade may be exceeded for short distances, subject to approval by City Engineer.
String lines for curb grades less than 0.8% shall be certified by a surveyor prior to curb installation.
5. K-value, length in feet per percent of algebraic grade difference. Vertical curve length, $L = K * A.D.$
Grade differences less than 1% do not require a vertical curve. Minimum vertical curve length = 50'.
6. Paved street width includes gutter section, not curb.
7. Street and right-of-way widths will vary if additional paving is necessary for on street parking, turning lanes, bus lanes, etc.
8. Intersection return radius refers to face of curb radius.

Table 2.02 B

Residential Access Street Design Elements

Design Elements ¹	Classification	Neighborhood Collector	Local Access			Private Street
			Sub-Collector	Sub-Access	Minor Access	
No. of Single-Family Dwelling Units Served ²		Over 50	20 - 100	35 max.	16 max.	-
Design Speed (mph)	Flat	35	30	25	25	20
	Rolling	35	30	25	25	20
	Mountainous	25	25	20	20	20
Horizontal Curve Radius (ft) Minimum	Flat	380	275	100	100	100
	Rolling	380	275	75	75	75
	Mountainous	185	185	55	55	55
Superelevation Rate (%)	Maximum	6	6	6	6	6
Centerline Grade (%) ³	Minimum	0.5	0.5	0.5	0.5	0.5
	Maximum	8	8	12	12	12
Stopping Sight Distance (ft) Minimum	Flat	250	200	150	125	125
	Rolling	250	200	150	125	125
	Mountainous	150	150	150	125	125
Crest Vertical Curves (K) ⁴	Flat	40	30	20	10	10
	Rolling	30	30	20	10	10
	Mountainous	20	20	10	10	10
Sag Vertical Curves (K) ⁴	Flat	50	40	30	20	20
	Rolling	40	40	30	20	20
	Mountainous	30	30	20	20	20
Street Width (ft) ⁵	Minimum	38	28	28	28	24
Right-of-way Width (ft)	Minimum	60	50	50	50	50
Intersection Return Radius (ft) ⁶	Minimum	35	30	30	30	30
Intersection R-O-W Radius (ft)	Minimum	50	30	30	30	30

Notes:

1. Geometric design shall be consistent with AASHTO's "A Policy on Geometric Design of Highways and Streets," current edition.
2. Number of S.F. dwelling units served includes forecasted future development, if future street extension is possible.
3. Maximum centerline grade may be exceeded for short distances, subject to approval by City Engineer.
String lines for curb grades less than 0.8% shall be certified by a surveyor prior to curb installation.
4. K-value, length in feet per percent of algebraic grade difference. Vertical curve length, $L = K * A.D.$
Grade differences less than 1% do not require a vertical curve. Minimum vertical curve length = 50'.
Maximum K-value (Sag Vertical Curve) = Minimum K-value + 20'.
5. Paved street width includes gutter section, not curb.
6. Intersection return radius refers to face of curb radius.

2.03 Private Streets

- A. While community vehicular access requirements are best served by public streets, owned and maintained by the City, private streets may be appropriate for some local access streets. Usually these are minor access streets, either residential or commercial.
- B. Private streets may be approved only when they are:
1. Permanently established by right-of-way or tract providing legal access to each affected lot, dwelling unit, or business and sufficient to accommodate required improvements, to include provision for future use by adjacent property owners when applicable; and
 2. Built to City of Covington Design and Construction Standards and Specifications, as set forth herein and
 3. Properly signed and are accessible at all times for emergency and public service vehicle use; and
 4. Not obstructing, or part of, the present or future public neighborhood circulation plan developed in processes such as the City of Covington Comprehensive Plan, applicable community plan, or Capital Improvement Program; and
 5. Not going to result in land locking of present or future parcels; and
 6. Not needed as public streets to meet the minimum street spacing requirements of these Standards; and
 7. Designed to serve a maximum potential of two single-family dwelling units when the entire length of the private street system to the nearest public street is considered. The maximum potential is the number of dwelling units that can possibly be served by the street when physical barriers, zoning or other legal constraints are considered; and
 8. Maintained by a capable and legally responsible homeowners' association or other legal entity made up of all benefited property owners, under the provisions as established by the City of Covington; and
 9. Clearly described on the face of the short plat, or other development authorization and clearly signed at street location as a private street, for the maintenance of which City of Covington is not responsible.
- C. The City of Covington will not accept private streets for maintenance as public streets until such streets are brought into conformance with current City of Covington Design and Construction Standards and Specifications. This requirement will include the design standards for the street classification placed upon the private street.

- D. The City of Covington will not accept private streets within short plats when the streets providing access to the plat are private and already have the potential to serve more than the number of lots specified in Section 2.03 B. 7 (Private Streets). Short plats proposed on properties to which the access is over private streets that do not meet the standards in this section shall be denied.

2.04 Half Streets

- A. A half street may be permitted as an interim facility only when:
 - 1. Such street shall not serve as primary access to more than 16 dwelling units or tax lots; and
 - 2. Such alignment is consistent with or will establish a reasonable circulation pattern; and
 - 3. There is reasonable assurance of obtaining the prescribed additional right-of-way from the adjoining property with topography suitable for completion of a full-section street.
- B. A half street shall meet the following requirements:
 - 1. Right-of-way width of the half street shall equal at least 33 feet; and
 - 2. Should be designed to accommodate ultimate section; and
 - 3. Traveled way shall be surfaced the same as the designated street type to a width not less than 20 feet. Curb, planter strip and sidewalk shall be constructed as required for the designated street type; and
 - 4. Property line edge of street shall be finished with shoulders, ditches, and/or side slopes so as to assure proper drainage, bank stability, and traffic safety; and
 - 5. Gravel shoulders shall be provided to a width of 2 feet and adequate drainage provided on the unimproved half of the street; and
 - 6. Half streets shall not intersect other half streets unless so approved by the Engineer.
- C. When a half street is eventually completed to a whole street, the completing builder shall sawcut the existing pavement along the center of right of way to establish the final centerline and shall reconstruct the original half street as necessary to produce a proper full-width street of designated section to include grinding and overlaying the original street segment from intersection to intersection.
- D. The obtaining of any right-of-way needed to accomplish the above shall be the responsibility of the owning builder or developer.

2.05 Cul-de-sacs and Eyebrows

- A. In general, permanent cul-de-sacs and dead-end streets are discouraged in the design of street systems and should only be used when the presence of natural features, topography and/or vehicular safety factors make a vehicular connection impractical. Where cul-de-sacs or dead-end streets are unavoidable, site or subdivision plans shall incorporate provisions for future vehicular connections to adjacent, undeveloped properties, and to existing adjacent development where existing connections are poor.
- B. Whenever a non-through (dead end) street serves more than two lots or extends more than 150 feet from centerline of the accessing street to farthest extent of surfaced traveled way a widened "bulb" (cul-de-sac) shall be constructed in accordance with the Standard Details.
- C. The cul-de-sac Island is an optional feature for any cul-de-sac, subject to City of Covington approval. If provided, the cul-de-sac island shall have full-depth vertical curb. Minimum radius shall be 10 feet (maximum 15 feet) and shall provide at least 30 feet of paved traveled way in a curb type section around the circumference. The island shall be landscaped and shall have adequate topsoil to support the growth of acceptable vegetation with a slope from the center of the island to the curb edge adequate to allow water runoff. Artificial materials that mimic plants or grass are not acceptable alternatives to living vegetation. The adjoining lot owners shall maintain the vegetation.
- D. A permanent cul-de-sac shall not be longer than 450 feet measured from centerline of intersecting street to the center of the bulb section along the centerline of the street. Proposed exceptions to this rule will be considered by the City Engineer based on long term traffic planning factors such as topography and critical areas. The cul-de-sac length may extend to 600 feet if 30 or fewer potential dwelling units, based upon current land use density, are to be served.
- E. The City Engineer may require an off-street walkway and/or an emergency vehicle access to connect the cul-de-sac at its terminus with other streets, parks, schools, bus stops, or other pedestrian traffic generators, if current or future need exists.
- F. If a street is temporarily terminated at a plat or phase boundary, and serves more than three parcels or is longer than 150 feet, then a temporary cul-de-sac shall be constructed at the boundary, in accordance with the Standard Details.

A Type III barricade with a sign stating "Street to be Extended in Future" shall be installed at the terminus of the temporary cul-de-sac. Appropriate easements shall be recorded if the temporary cul-de-sac extends into the adjacent property.

Removal of the temporary cul-de-sac, restoration and extension of the sidewalk, landscape strip, storm drainage systems, and street illumination shall be the responsibility of the developer who extends the street. Plat development, as it relates to finished grade, shall allow for the logical extension of said improvements without significantly impacting the existing development and residents.

- G. The maximum cross slope in a bulb shall not exceed six (6) percent in any direction.
- H. Partial bulbs or eyebrows shall have a minimum paved radius and an island configuration as shown on Standard Detail 219 (Typical Eyebrow). The island shall be offset ten (10) feet from edge of traveled way.

2.06 Alleys and Private Access Tracts

- A. An alley is considered a private street. See Standard Detail 211 (Typical Street Section Alley).
 - 1. Serves a maximum of 20 lots for alleys, with a maximum length of 300 feet, no dead ends or cul-de-sacs will be allowed.
 - 2. Minimum tract width 28 feet with a pavement surface of 24 feet, based on a twenty-foot structure setback. For differing structure setback requirements, alley configuration shall be designated to provide for safe turning access to properties and rear yard fences shall not be placed within the sight triangle for the driveways.
 - 3. Public streets to which an alley connects or which provide access to the front boundary of the properties served by the alley shall be 24-foot minimum paved width. Alley entry shall be provided by a driveway cut for residential use or commercial use.
 - 4. Modifications to existing alleys serving commercial or industrial properties, in accordance with the above, will be determined on a case-by-case basis subject to approval by the City Engineer.
- B. Private residential access tracts shall conform to Standard Detail 212 (Typical Street Section Private Access Tract) and the following:
 - 1. Serves a maximum of two remote parcels, where the two adjoining lots to the access tract that abut a public way shall also gain access via the access tract.
 - 2. Minimum tract width of 28 feet with a maximum length of 150 feet, measured from centerline of intersecting street to furthest extent of paved tract along the centerline of the street.
 - 3. Pavement width shall be a minimum of 24 feet.
 - 4. Easements may be required for utilities and/or drainage.

2.07 Intersections

A. Intersection Geometry

1. All intersections shall be designed at right angles to the intersecting street, where possible. The skew angle shall not vary by more than 10 degrees from a right angle, measured 20 feet beyond the intersecting right-of-way. At four-legged intersections, opposite legs shall lie on a straight alignment.
2. Minimum curb radius
 - a. Streets (Classified Collector or higher) 35 Feet
 - b. Local Access Streets 30 Feet
(highest classification involved is collector)
3. Minimum right-of-way line radius
 - a. Local Access 30 Feet
Commercial 35 Feet
Arterial 50 Feet

B. Spacing between adjacent intersecting streets, whether crossing or T-connecting, shall be as follows:

When highest classification involved is:	Minimum centerline offset shall be:
Arterial (Principal and Minor)	1,000 Feet
Collector Arterial	500 Feet
Local Access	150 Feet
Alley	100 Feet

C. On sloping approaches at an intersection, landings shall conform to Standard Detail 213 (Intersection Landing).

2.08 Maximum Grade and Grade Transitions

- A. Maximum centerline grade, as shown in Table 2.02 A or 2.02 B, may be exceeded for short distances of 300 feet or less, upon showing that no practical alternative exists and will require verification by the Fire Marshal that additional fire protection requirements will be met. Grades exceeding 12 percent shall be paved with asphalt concrete (AC) or Portland cement concrete (PCC).
- B. Grade transitions shall be constructed as smooth vertical curves except in instances where the difference in grade is one percent or less and upon approval of the City Engineer. The minimum vertical curve length shall be determined by multiplying the algebraic grade difference by the minimum K-value for the vertical curve type and applicable street classification. Maximum K-values for sag vertical curves on residential access streets are required for adequate street drainage. See Tables 2.02 A and 2.02 B.

2.09 Stopping Sight Distance (SSD)

Stopping sight distance applies to street classifications. See Tables 2.02 A and 2.02 B for specific SSD values based on required design speed.

- A. Height of eye is 3.5 feet and height of object is 0.5 feet.
- B. Minimum SSD for any downgrade averaging three percent or steeper shall be increased by the values shown below (Source: AASHTO Policy on Geometric Design, Table III-2). Interpolate values for other design speeds and grades.

SSD ADJUSTMENT VALUES (FT)

DESIGN SPEED (MPH)	Downgrade		
	3 Percent	6 Percent	9 Percent
50	30	70	-
45	25	55	-
40	20	40	70
35	15	30	50
30	10	20	30
25	5	15	25
20	0	10	20

- C. Sag vertical curves on local access streets with stopping sight distance less than that called for in Table 2.02 B (Residential Access Street Design Elements) may be approved by the City Engineer under the following circumstances:
 - 1. No practical design exists,
 - 2. Acceptable street lighting is provided throughout the curve, and
 - 3. Street lighting is maintained by a franchised utility.
- D. Intersecting Stopping Sight Distance.
 - 1. Stopping sight distances for the design speeds of proposed commercial access streets, neighborhood collector streets and arterials must be met when intersecting arterials.
 - 2. The minimum stopping sight distance on proposed intersection approaches for all other classifications of intersecting streets shall be as shown in Standard Detail 301 (Sight Distance at Uncontrolled Intersections).

2.10 Entering Sight Distance (ESD)

Entering sight distance applies on driveways and on streets approaching intersections. Specific ESD values for required design speeds are listed in Table 2.02 A (Arterial and Commercial/Industrial Street Design Elements).

- A. Entering vehicle eye height is 3.5 feet, measured from 10-foot back from edge of traveled way. Approaching vehicle height is 4.25 feet.
- B. Requirements in the Standard Details apply to an intersection or driveway approach to a typical street under average conditions. In difficult topography the City Engineer may authorize a reduction in the ESD based on factors mitigating the hazard. Such factors may include an anticipated posted or average running speed less than the design speed or the provision of acceleration lanes and/or a median space allowing an intermediate stop by an approaching vehicle making a left turn.
- C. Where a significant number of trucks will be using the approach street, the City Engineer may increase the entering sight distance requirements by up to 30 percent for single-unit trucks and 70 percent for semi-trailer combinations.

2.11 Medians

- A. Median width shall be 18 feet wide between travel lanes and six feet wide between a travel and turning lane and be additional to, not part of, the specified width of traveled way.
- B. Edges shall be similar to outer street edges, formed with vertical Portland cement concrete curb.
- C. Twenty-three feet of drivable surface (which includes traveled way and paved shoulders) shall be provided on either side of the median.
- D. Medians shall be landscaped and mounded to a finished centerline grade height of three feet above the medians curbs.
- E. Medians shall be designed so as not to limit turning radii or sight distance at intersections.
- F. No portion of a side street median may extend into the right-of-way for an arterial street.
- G. The Engineer may require revisions to medians as necessary to maintain required sight distance.
- H. Non-yielding or non-breakaway structures shall not be installed in medians.
- I. Street trees shall be planted in median subject to approval by the City Engineer.

2.12 One-Way Streets

Local access streets, including loops, may be designated one-way upon a finding by the City Engineer and Fire Marshal that topography or other site features make two-way traffic impractical or to improve the flow of traffic and/or pedestrian safety.

2.13 Bus Zones and Turn-Outs

During the design of arterials and neighborhood collectors, the designers shall contact Metro Service Planning, phone (206) 684-1523 and the local school district to determine bus zone (stop) locations and other bus operation needs. The street project shall provide wheel chair accessible landing pads at designated bus zones as per Section 3.05 (Curb Ramps) of the Design and Construction Standards and Specifications and where required shall include turn-outs and shelter pads. Pedestrian and handicapped access improvements within the right-of-way to and from the bus loading zone or turn-out from nearby businesses or residences shall also be provided as part of the street improvement. Surfacing requirements may also be affected, particularly on shoulders.

2.14 Intersections with State or Federal Highways

In the event that the City has jurisdiction on a development that requires the construction or improvement of a residential/commercial/industrial driveway or any classification of street that intersects a state or federal highway, minimum intersection spacing, entering sight distance and landing requirements in accordance with these Standards shall be satisfied in addition to the requirements of all other applicable permits. In the instance State or Federal standards exceed these Standards, State or Federal standards shall govern.

2.15 Slope, Wall and Drainage Easements

Either the functional classification or particular design features of a street may necessitate slope, sight distance, and wall or drainage easements beyond the right-of-way line. Such easements may be required by the City Engineer in conjunction with dedication or acquisition of right-of-way and required to be obtained by the Developer.

2.16 Access and Circulation Requirements

No residential street shall serve more than a total of 30 lots or dwelling unless, based upon the highest developable density allowed in that zone, the street is connected in at least two locations with another street that functions at a level of sub-collector or higher.

- A. The second access requirement may be satisfied through use of connecting a new street to an existing street in an adjacent neighborhood if:
1. No other practical, excluding financial, alternative exists, or
 2. Existing street was previously stubbed indicating intent for future access, or
 3. An easement has been recorded specifically for said purpose.

The second access requirement may not be satisfied through use of an existing street network in the existing adjacent neighborhood if:

1. A more practical alternative exists, or
2. Existing street is private, or

3. Existing street does not meet the minimum design elements for the ultimate classification of the street. See Tables 2.02 A and 2.02 B.
- B. The second access requirement may cause the construction of an off-site street connecting the development to a suitable serving street.
 - C. These provisions are not intended to preclude the state statute on land-locking.
 - D. This section does not preclude a commercial project from gaining access through a residential development or other commercial development. Traffic impacts for such projects will be analyzed and mitigation measures developed prior to the SEPA process.
 - E. Location of the second access shall have the concurrence of the Fire District.

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CHAPTER 3 DRIVEWAYS, WALKS, CURBS AND TRAILS

3.01 Driveways, Sidewalks, Curbs and Gutters

- A. Subgrade compaction for driveways, sidewalks, curbs and gutters shall meet a minimum 95 percent of maximum density.
- B. Concrete for driveways, sidewalks, curbs and gutters shall be Class 4000, furnished and placed in accordance with Sections 6-02, 8-04, 8-06 and 8-14 of the WSDOT Standard Specifications. Cold weather precautions as set forth in Sections 5-05.3(14) and 6-02.3(6)A shall apply.
- C. Extruded cement concrete curb shall be anchored to existing pavement by an epoxy resin in conformance with Section 9-26 of the WSDOT Standard Specifications.
- D. Extruded asphalt curbs shall be anchored by means of a tack coat of asphalt in accordance with Section 8-04 of the WSDOT Standard Specifications.
- E. Replacement of any portion of an existing driveway, sidewalk or curb shall be from dummy joint to dummy joint, as depicted in the Standard Details.
- F. For any curb grade less than 0.8% (0.0080 ft/ft), including curb returns, a professional Land Surveyor shall verify that the curb forms or string lines are at the grades noted on the approved plans prior to placement of concrete. The contractor is responsible for survey coordination and costs.

3.02 Driveways

- A. Dimensions, slope and detail shall be as indicated in the Standard Details, and as further specified in the following subsections. See Section 2.10 for entering sight distance requirements on arterials or commercial/industrial streets.
- B. Conditions for Approval of New Driveways:
 - 1. Driveways directly giving access onto arterials will be denied if alternate access is available.
 - 2. All abandoned driveway areas on the same frontage shall be removed and the curbing and sidewalk, plus landscape strip installed to these standards shall be properly restored.
 - 3. Maintenance of driveway approaches, excluding culverts, shall be the responsibility of the owner(s) whose property they serve.
 - 4. For driveways crossing an open ditch section, culverts shall be adequately sized to carry anticipated stormwater flows and in no case be less than 12

inches in diameter. The property owner making the installation shall be responsible for obtaining a Right-of-Way Permit. The City Engineer shall require the owner to verify the adequacy of pipe size.

- C. Location and Width of New Driveways. Refer to Standard Detail 302 (Location and Width of New Driveways).
 - 1. One driveway per parcel.
 - 2. A residential driveway shall serve only one parcel. A driveway serving more than one parcel shall be classed as a commercial driveway or a private street, except as provided in 3.a. and 3.b. below.
 - 3. No portion of the driveway shall be allowed within 5 feet of side property lines or 9 feet in commercial areas except as follows:
 - a. A joint use driveway may be used to serve two parcels. The minimum driveway width shall be a 20 foot paved surface.
 - b. On cul-de-sac bulbs as necessary for proposed residential access.
 - 4. Maximum driveway grade: 12% residential, 8% commercial.
 - 5. Maximum driveway width serving a single parcel shall be 25-feet, including the flared width of the apron ramps.
- D. Existing driveways may be reconstructed as they exist provided such reconstruction is compatible with the adjacent street and they are constructed per these standards as to material, width and slope.
- E. For commercial or industrial driveways with heavy traffic volumes or significant numbers of trucks, the City Engineer may require construction of the access as a street intersection. This requirement will be based on traffic engineering analysis submitted by the applicant that considers, among other factors, intersection spacing, sight distance and traffic volumes. Otherwise, commercial or industrial driveways shall be designed and constructed in accordance with the Standard Details.
- F. Notwithstanding any other provisions, driveways will not be allowed where they are prohibited by separate City Council action or where they are determined by the City Engineer to create a hazard or impede the operation of traffic on the street.
- G. In commercial, multi-family and industrial developments lane connections shall be provided between adjacent properties and parking areas shall be interconnected to allow traffic to move freely between properties without the need to access public streets.
- H. Placement of storm gratings, utility and access covers, and other appurtenances shall not be located within the width of the driveway.

- I. Driveway locations and widths shall be shown on the design plans prior to final approval.

3.03 Concrete Sidewalks

- A. Shall be required on streets as follows:
 1. On both sides of all public streets.
 2. Within multi-family dwelling complexes, commercial and industrial areas covered walkways shall be provided as outlined in the Downtown Plan.
- B. Shall be constructed:
 1. Back of planting strips where planting strips are to be constructed.
 2. At least five feet wide on residential and eight feet wide on all Arterial streets and commercial access drives. The full width of sidewalk shall be clear of mailboxes or other obstructions.
 3. At least eight feet wide:
 - a. In business/commercial districts.
 - b. In designated bus zones to provide a landing area for wheelchair access to transit services.
 4. With specified width greater than eight feet where City Engineer determines this is warranted by expected pedestrian traffic volume.
 5. With Portland cement concrete surfacing as provided in Sections 3.01 (Driveways, Sidewalks, Curbs and Gutters) and 4.01 (Residential Streets, Pedestrian and Bikeways). See specifications for expansion joints in Section 3.04 (Expansion and Dummy Joints) and Standard Detail 306 (Concrete Sidewalk Detail).
- C. Utility poles, pedestals or covers shall be prohibited within new sidewalks, unless specifically approved by the City Engineer.

3.04 Expansion and Dummy Joints

See Standard Details: 303 (Residential Concrete Driveway), 304 (Commercial Concrete Driveway), 306 (Concrete Sidewalk Detail) and 323 (Concrete Curb and Gutter).

- A. An expansion joint consisting of 3/8" or 1/2" x full depth of pre-molded joint material shall be placed around fire hydrants, poles, posts and utility castings, and along walls or structures in paved areas. Joint material shall conform to the requirements of ASTM D994 (AASHTO M33).

- B. A dummy joint consisting of 3/8" or 1/2" x 2" of pre-molded joint material shall be placed in curbs and sidewalks at 10' intervals. Interval spacing may vary up to 1' to create consistent curb and sidewalk section lengths between curb returns, drainage structures and driveways, and to avoid sections of less than 5 feet.
- C. When curbs and/or sidewalks are placed by slip-forming, a pre-molded joint strip up to 1/2" thick and up to full depth may be used.
- D. Dummy joints in the sidewalk shall align with the joints in the curb, whether sidewalk is adjacent to curb or separated by planting strip.
- E. Tool marks consisting of 1/4" V-grooves shall be made in sidewalk at five foot intervals or equal to width of sidewalk, intermediate to the dummy joints.
- F. As alternative to expansion joints around structures, reinforcing bars may be embedded in concrete on four sides of structures.

3.05 Curb Ramps

See Standard Details: 308 (Wheelchair Ramp A) and 309 (Wheelchair Ramp B).

- A. On all streets with vertical curb, ramped sections to facilitate passage of ADA accessible persons shall be constructed through curb and sidewalk at street intersections and other crosswalk locations.
- B. Where a ramp is constructed on one side of the street, a ramp shall also be provided on the opposite side of the street. Curb ramps shall be positioned so that a ramp opening is situated within the marked crosswalk or crossing area if unmarked.
- C. Placement of storm gratings, utility and access covers, and other appurtenances shall not be located on curb ramps, landings or gutters within the pedestrian access route.

3.06 Concrete Steps, Metal Handrail and ADA Access Ramps

- A. Steps shall only be used where acceptable alternative access is available for ADA access and there is a need for a separate stairway. Where used, concrete steps shall be constructed in accordance with Standard Details: 316 (Pedestrian Railing), 317 (Pedestrian Railing Notes), 318 (Cement Concrete Stairway Construction Details), and 319 (Cement Concrete Steps) or other design acceptable to the City Engineer, and consistent with ADA standards. Handrails, whether for steps or other applications, shall be provided consistent with Standard Details: 316 (Pedestrian Railing) and 317 (Pedestrian Railing Notes).
- B. Ramps used to provide ADA access shall have a maximum slope of 12:1 with a maximum rise of 30 inches between landings and a maximum 2% cross-slope. Landings shall have a minimum length of four feet and should be of sufficient width to allow wheelchairs to pass, generally four feet minimum width for two way traffic.

3.07 Asphalt Shoulders

- A. Asphalt paved shoulders may be used where approved by the City Engineer on existing streets to provide for bicycle and pedestrian use as specified in Section 1.04 B. and to provide continuity of design. When allowed, paved shoulders shall be placed in conformance with Standard Detail 325 (Extruded Asphalt Concrete Sections, Thickened Edge for Asphalt Pavement).
- B. Where shoulders are paved on one side only, they shall be delineated by a four-inch white thermoplastic edge line.

3.08 Separated Walkways, Bikeways and Trails

Separated pedestrian and bicycle trails shall be provided where designated in community and functional plans or where required by the City Engineer because of anticipated significant public usage. Separated facilities are typically located on an easement or within the right-of-way when separated from the street by a drainage ditch or barrier. Where separate walkways, bikeways, or trails intersect with motorized traffic, sight distance, marking and signalization (if warranted) shall be as provided in MUTCD. Facilities shall be designed as follows:

- A. Separated asphalt walkways are designed primarily for pedestrians and are typically located within the right-of-way or easement. Minimum width shall be eight feet wide with asphalt surfacing. Surfacing shall consist of two inches AC over four inches of crushed surfacing base course compacted to a minimum density of 90%.
- B. Neighborhood pathways are soft surface facilities designed for pedestrians. Such pathways shall be a minimum five feet wide with at least one and one-half foot clearance to obstructions on both sides and 10-foot vertical clearance. Pathways shall be designed and located so as to avoid drainage and erosion problems. Pathways shall be constructed of two and one-half inches of crushed surfacing top course or wood chips over cleared native material as approved by the City Engineer.
- C. Multi-purpose trails are typically designated for bicycle and pedestrian use and in general follow a right-of-way independent from any street. Multi-purpose trails shall be designed to bicycle path standards as described in Section 3.10 (Bikeways).

3.09 School Access

School access required as part of development approval shall be provided by a concrete sidewalk or asphalt walkway.

3.10 Bikeways

- A. Bikeways are generally shared with other transportation modes, although they may be provided exclusively for bicycle use. Bikeways are categorized below based on degree of separation from motor vehicles and other transportation modes. This classification does not denote preference of one type over another. Bikeways are categorized as follows:
1. Bike Lane (Class II): A portion of the street that is designated by pavement striping for exclusive bicycle use. Bicycle lanes may be signed as part of a directional route system. Bicycle lanes are five feet wide on a curbed street and minimum four feet wide as a paved shoulder bike lane.
 2. Wide Curb Lane (Class III): A street that provides a widened paved outer curb lane to accommodate bicycles in the same lane as motor vehicles. Lane width shall be increased at least three feet.
 3. Shared Street: All streets not categorized above where bicycles share the street with motor vehicles.
- B. A bikeway shall be provided:
1. Wherever called for in the Non-motorized Transportation Plan, City of Covington Six Year Transportation Improvement Plan, City of Covington Comprehensive Plan, Neighborhood Plan, Capital Improvement Program or Transportation Needs Report and all Arterials with the exception of SR 516.
 2. When substantial bike usage is expected, which would benefit from construction of a bicycle facility.
- C. Striping and signing shall be implemented as follows:
1. Pavement markings shall be used on bike lanes and paths according to MUTCD.

NOTE: Do not use thermoplastic or RPM's in bicycle lane area.
 2. The design of all signalized intersections shall consider bicycle usage and the need for bicyclists to actuate the signal.
- D. The planning and design of bikeways in any category shall be in accordance with Section 1020 of the WSDOT Design Manual and the AASHTO Guide for the Development of Bicycle Facilities, current edition.

3.11 Equestrian Facilities

Equestrian facilities adjacent to the traveled way shall be provided where proposed by the City of Covington Non-motorized Transportation Plan or as required by the City Engineer. Facilities shall be provided as follows:

- A. Shoulders adjacent to the traveled way intended for equestrian use shall be surfaced full-width, minimum four feet with eight feet desirable. Surface shall be two and one-half inches of crushed surfacing base course and one and one-half inches of crushed surfacing top course.

- B. A separated equestrian trail shall be constructed with an 18 percent maximum grade, 12-foot vertical clearance and a six-foot wide pathway zone. The trail shall be constructed of native soil or, where drainage or erosion problems are present, a minimum of two and one-half inches of crushed surfacing top course on graded and compacted native soil. Native soil which is not free draining shall be removed and replaced with free draining soil as necessary to provide a maintainable and well-drained subgrade. Additional crushed surfacing, cinders or other stabilizing materials shall be required if heavy usage is anticipated or if there is any evidence of instability in the subgrade; including free water, swamp conditions, fine-grained or organic soils, slides or uneven trails.

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CHAPTER 4 SURFACING

4.01 Residential Streets, Pedestrian and Bikeways

The minimum paved section, with alternative combinations of materials, for residential streets, shoulders, sidewalks and bikeways shall be as indicated in the Standard Details. These sections are acceptable only on visually good, well-drained, stable compacted subgrade. Any proposed exception to these materials will be subject to soils strength testing and traffic loading analysis and subject to review and approval by the City Engineer as outlined in Section 4.02 (Requirements for Residential Streets on Poor Subgrade) below. All expenses for determining revised materials shall be borne by the Developer.

When a walkway or bikeway is incorporated into a street shoulder, the required shoulder section, if higher strength, shall govern. Subgrade compaction for bikeways and paved walkways shall meet a minimum of 90 percent maximum density.

4.02 Requirements for Residential Streets on Poor Subgrade

The minimum material thicknesses as illustrated in the Standard Details are not acceptable if there is any evidence of instability in the subgrade. This includes free water, swamp conditions, fine-grained or organic soil, slides or uneven settlement. If there are any of these characteristics, the soil shall be sampled and tested sufficiently to establish a pavement design that will support the proposed construction. Any deficiencies, including an R-value of less than 55 or a CBR of less than 20, shall be fully considered in the design. Remedial measures may include, but are not limited to, a stronger paved section, a strengthening of subgrade by adding or substituting fractured aggregate, asphalt treated base, installing a geotextile fabric, more extensive drainage or a combination of such measures. Both the soils test report and the resulting pavement design will be subject to review and approval by the City Engineer.

4.03 Arterials and Commercial Access Streets

Any pavement for arterials and commercial access streets shall be designed using currently accepted methodology that considers the load bearing capacity of the soils and the traffic-carrying requirements of the street. Plans shall be accompanied by a pavement thickness design based on soil strength parameters reflecting actual field tests and traffic loading analyses. The analysis shall include the traffic volume and axle loading, the type and thickness of street materials and the recommended method of placement.

4.04 Materials and Lay-Down Procedures

Materials and lay-down procedures shall be in accordance with WSDOT Standard Specifications and the following requirements:

- A. Prior to placement of curbing or pavement section, a proof-rolle shall be performed and observed by the construction inspector to confirm the subgrade is firm and unyielding.
- B. Crushed surfacing top and base courses may be substituted for a structurally equivalent thickness of ATB. The substitution ratio of crushed surfacing to ATB shall be 1.6:1. Where base or top courses cannot be placed without possible contamination, then these courses shall be substituted by ATB.
- C. During surfacing activities utility covers in streets shall be adjusted in accordance with Section 8.04 (Final Utility Adjustment (To Finish Grade)).
- D. ATB may be used over isolated areas of unstable subgrade, providing the final lift of asphalt shall not be placed for a minimum of six months to allow time for the observation and repair of failures in the Subgrade and ATB.
- E. Asphalt pavers shall be self contained, power-propelled units. Truck mounted type pavers are not considered self propelled. Truck mounted pavers shall only be used for paving of irregularly shaped or minor areas as approved by the City Engineer, or as follows:
 - 1. Pavement widths less than eight feet; and
 - 2. Pavement lengths less than 150 feet.
- F. Hot mix asphalt (HMA) for the wearing course shall not be placed on any traveled way between October 1 and April 1, without written approval from the City Engineer. Prior to placement of HMA, a tack coat shall be thoroughly and uniformly applied to all existing paved surfaces in accordance with Section 5-04.3(5)A of the WSDOT Standard Specifications. Asphalt for prime coat shall not be applied when the ground temperature is lower than fifty degrees Fahrenheit, without written approval from the Construction Inspector.

When discharged from the mixing batch plant, the temperature of the HMA shall not exceed the maximum temperature recommended by the asphalt binder manufacturer. Documentation of recommended temperatures shall be submitted prior to placement.

A maximum water content of 2 percent in the mix, at discharge, will be allowed providing the water causes no problems with handling, stripping or flushing. If the water in the HMA causes any of these problems, the moisture content shall be reduced as directed by the Construction Inspector. The asphalt shall have a temperature of not less than 260 degrees Fahrenheit. For surface temperature limitations, see Section 5-04.3(16) of the WSDOT Standard Specifications. Each truckload shall be covered with a suitable tarpaulin while in transit and while waiting to be unloaded to prevent unnecessary heat loss.

- G. Unfavorable Weather: Asphalt shall not be applied to wet material. Asphalt shall not be applied during rainfall or before any imminent storms that might damage

the construction. The Inspector will have the discretion as to whether the surface and materials are dry enough to proceed with construction.

4.05 Pavement Markings, Markers and Pavement Tapers

Pavement markings, markers or striping shall be used to delineate channelization, lane endings, crosswalks and longitudinal lines to control or guide traffic, as illustrated in the Standard Details. Channelization plans or crosswalk locations shall be approved by the City Engineer.

- A. Channelization shall be required when:
 - 1. Through traffic is diverted around a lane or obstacle.
 - 2. Connecting full width streets with different cross sections.
 - 3. Extending an existing street with a new cross section different than the existing one.
- B. The channelization shall provide tapers equal in length to the posted speed limit times the distance in feet of diversion from the street centerline or the original alignment of travel, or the offset distance, as applicable. Channelization shall also be required to redirect traffic back to their original alignment.
- C. Left turn channelization shall include a minimum of 150 feet of full width lane storage plus a reverse curve 90 feet in length for posted speeds up to 45 mph. The reverse curve shall be 120 feet in length for posted speeds greater than 45 mph. The reverse curve may be included within the taper distance. A deceleration taper as shown in the WSDOT Standard Plans may be used in place of a reverse curve. Standard left turn lanes shall be 12 feet wide. See Standard Detail 408 (Two-Way Left Turn Lane Marking Details), Note 1. Additional storage may be required for long vehicles or anticipated left turn queues longer than the minimum storage.
- D. Pavement markings for channelization shall be reflectorized hot or cold applied plastic with the exception of any markings within the bike lane, which shall consist of paint. Extruded or sprayed markings shall be dressed with glass beads for initial reflectance. All materials shall have beads throughout the material to maintain reflectance while the material wears.
- E. Where pavement widening less than 300 feet in length is abruptly ended and edge lines do not direct traffic to through lanes, Type 2e lane markers shall be installed at 10 foot centers near the end of the paved area at a 10:1 taper.
- F. Crosswalks shall be installed at all intersections controlled by traffic signals and other areas approved by the City Engineer. Crosswalks in the downtown area shall be a stamped concrete in accordance with the Standard Details.
- G. All pavement markings shall be laid out with spray paint and approved by the City Engineer before they are installed. Approval may require a three working day

advance notice to have field layout approved by the City Engineer or to make arrangements to meet the City Engineer on site during the installation.

4.06 Driveway Surfacing

Driveways may be surfaced as desired by the owner, except as follows:

- A. On curbed streets with sidewalks, driveway shall be paved with Portland cement concrete Class 4000 mix from curb to back edge of sidewalk. See Standard Detail 304.
- B. On shoulder and ditch section, driveway between edge of pavement and right-of-way line shall be surfaced as required in Standard Detail 305.
- C. On thickened edge streets with underground utilities, Asphalt Concrete Pavement (ACP) is the preferred surfacing, but Portland cement concrete may be used for driveways between the thickened edge and the right-of-way line, provided that a construction joint is installed at the right-of-way line.
- D. On private access tracts, driveways shall be paved with same surfacing as access tract or concrete Class 3000 or better.

4.07 Street Widening/Adding Traveled Way to Existing Streets

- A. When an existing asphalt paved street is to be widened, the edge of pavement shall be sawcut to provide a clean, vertical edge for joining to the new asphalt. After placement of the new asphalt section, the joint shall be sealed, and a pre-level course installed followed by a minimum one and one half-inch (1½") overlay, full width throughout the widened area. All failures and cracking on road surfaces must be repaired prior to the overlay. The requirement stated in the current overlay ordinance may be waived by the City Engineer based on the condition of existing pavement and the extent of required changes to channelization.
- B. When an existing asphalt paved street is to be widened and the requirement to grind and overlay the existing portion is waived by the City Engineer, the widened portion shall be designed to optimize the change in cross-slope between the existing and new asphalt and to optimize the new curb grade. A sample street widening spreadsheet is provided in Section 10 of the Appendix.
- C. When an existing shoulder is to become part of a proposed traveled way a pavement evaluation shall be performed. This evaluation shall analyze the structural capacity and determine any need for improvement. Designs based on these evaluations are subject to review and approval by the City Engineer. The responsibility for any shoulder material thickness improvement shall be considered part of the requirement for street widening. The shoulder shall be replaced in width as specified in Chapter 2 (Street Types and Geometrics).
- D. Any widening of an existing street, either to add traveled way or paved shoulder shall have the same surfacing material as the existing street.

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CHAPTER 5 ROADSIDE FEATURES

5.01 Rock Facings, Retaining Walls and Rockeries

- A. Rock facings or rockeries may not be used for any protection of cut or fill embankments within the public right of way or within the construction limits of said right of way. Engineered retaining walls may be used within the public right-of-way upon approval of the City Engineer.
- B. Design and construction of rock facings, retaining walls and rockeries shall conform to the International Building Code and the International Residential Code, and shall generally follow the “Rock Wall Construction Guidelines,” prepared by the Associated Rockery Contractors.
- C. A building permit shall be required for any rock facing, retaining wall or rockery over four (4) feet in height, measured from the bottom of the footing to the top of the wall (retained wall height), or less if supporting a surcharge.
- D. Applicable terms:
 - 1. Retained Wall Height is the vertical distance measured from the bottom of the footing to the finished grade at the top of the wall.
 - 2. Exposed Wall Height is the vertical distance measured from the finished grade at the bottom of the wall to the finished grade at the top of the wall (does not include the footing depth below grade).
 - 3. Surcharge is the vertical load imposed on the retained soil that may impose a lateral force in addition to the lateral earth pressure of the retained soil. Examples of surcharge include: sloping retained soil, structure footings supported by the retained soil, adjacent vehicle loads supported by the retained soil, solid fences that are attached to or directly adjacent to the retained soil, etc.
 - 4. Segmental Gravity Walls are typically constructed of manufactured (Allen Block, Keystone, etc.) modular concrete or masonry units, stacked in a running bond pattern without mortar or reinforcement.
 - 5. Rockeries are typically constructed of interlocking rows of large, naturally shaped quarry stone or boulders, stacked without mortar or reinforcement. Rockeries are not structural walls and are typically employed for slope stability or erosion control.

E. Materials:

1. Segmental Gravity Walls shall be constructed of concrete masonry units (CMU's), manufactured in general accordance with the Northwest Concrete Masonry Association (NWCMA).
2. Rock Facings and Rockeries shall be constructed of sound, angular ledge rock that is resistant to weathering. The longest dimension of any individual rock should not exceed three times its shortest dimension.

F. A keyway shall be constructed for all rock facings, retaining walls and rockeries, and shall be comprised of a shallow trench (12" minimum depth), extending the full length of the wall and as wide as the wall units and the drain rock layer. The competency of the keyway subgrade to support the rock wall shall be verified by the site geotechnical engineer or City Inspector. Areas of "soft" subgrade shall be over-excavated and replaced with compacted structural fill.

G. An underdrain shall be installed at the rear of the keyway, consisting of a four-inch minimum diameter perforated or slotted, smooth-walled rigid plastic drain pipe. It shall be bedded on and surrounded by free-draining, 2" to 4" crushed rock with 5% fines.

The underdrain pipe should be installed with sufficient gradient to initiate flow to either one side, both sides or to a low point. Outfall shall be connected by an un-perforated tightline to a positive and permanent discharge.

H. The first course of rock or wall unit should be placed on firm, unyielding soil or onto a layer of compacted crushed rock. There should be full contact between the rock or wall unit and the soil or crushed rock surface. Due to the angular nature of rock, proper placement may require shaping of the ground surface or slamming or dropping the rocks into place.

During construction of rock facings or rockeries, the rocks should be placed so that there are no continuous joint planes in either the vertical or lateral direction. Wherever possible, each rock should bear on at least two rocks below.

I. To provide some degree of drainage control behind the rock facing, retaining wall or rockery, and as a means of helping to prevent the potential loss of soil through the face of the wall, a drain rock filter shall be installed between the rear face of the wall and the soil face being protected. This drain rock filter should be a minimum of 12 inches thick and should be composed of two to four inch sized quarry spalls, or equivalent material.

J. When a sidewalk is to be built over a rock facing, retaining wall or rockery, the top of the facing shall be sealed and leveled with a cap constructed of Class 4000 cement concrete in accordance with Chapter 3 of these Standards, but with reduced water content resulting in slump of not over two inches. See the Standard Details.

- K. For pedestrian protection, a black vinyl coated chain link fence or metal handrail shall be installed when the rock facing, retaining wall or rockery has an exposed wall height of three feet or greater. See the Standard Details.

Rock facings, retaining walls or rockeries constructed adjacent to property lines shall include a minimum 48" tall fence along the top of any portion of the wall with an exposed height of three feet or greater. Where applicable, fences should be placed on the property line.

5.02 Side Slopes

- A. Side slopes shall generally be constructed no steeper than 3:1 on both fill slopes and cut slopes. Steeper slopes may be approved by the City Engineer upon showing that the steeper slopes, based on soils analyses, will be stable.
- B. Side slopes shall be stabilized with grass sod or seeding (See Section 7.10) or by other planting or surfacing materials acceptable to the City Engineer.

5.03 Street Trees, Landscaping and Irrigation

- A. Street trees and landscaping shall be incorporated into the design of street improvements for all classifications of streets. Such landscaping in the right-of-way shall be coordinated with off-street landscaping required on developer's property under the provisions of Covington Municipal Code Chapter 18.40.
- B. Planting strips are required along all classifications of streets but may be considered as part of the landscape mitigation requirements established during the SEPA review process. The design of planting strips must be approved by the City Engineer and must include a landscaping plan in which plant maintenance, utilities and traffic safety requirements are discussed.
- C. Existing trees and landscaping shall be preserved where desirable and placement of new trees shall be compatible with other features of the environment. Maximum heights and spacing shall not conflict unduly with overhead utilities, or root development with underground utilities. As street trees are planted, they shall conform to the Standard Details.
- D. New trees shall not include poplar, cottonwood, soft maples, gum, any fruit bearing trees or any other tree or shrub whose roots are likely to obstruct sanitary or storm sewers.

5.04 Mail Boxes

- A. The responsibilities for location and installation of mailboxes in connection with the construction or reconstruction of City streets are as follows:
 - 1. City Engineer will:
 - a. Require street improvement plans, whether for construction by the City or by a private builder, to show clearly the designated location or

relocation of mailboxes, whether single or in clusters.

- b. Require with this information any necessary widening or reconfiguration of sidewalks with suitable knockouts or open strips for mailbox posts or pedestal.
 - c. Require these plans to bear a statement on the first sheet that "Mailbox Locations as Shown on These Plans Have Been Coordinated with the Serving Post Office at Covington, Washington." This will be a prerequisite to plan approval.
 - d. Require construction of mailbox locations in accordance with these plans, through usual inspection and enforcement procedures.
 - e. Ensure the mail boxes are not installed within five feet of a storm drain catch basin.
2. Covington Postmaster will:
- a. Designate location and manner of grouping of mailboxes when so requested by the design agency. Note on the plans the type of mailbox delivery: CBU (Collection Box Unit), or Rural type box. NDCBU's, Neighborhood Delivery and Collection Box Units have been designated as obsolete delivery equipment by the US Postal Service.
 - b. Authenticate by stamp or signature when this information has been correctly incorporated into the plans.
 - c. Do all necessary coordination with owners or residents involved to secure agreement as to mailbox location and to instruct them regarding mailbox installation.
 - d. Install or relocate CBU's, if these are the type of box to be used in the neighborhood. Replace NDCBU's with new CBU's.
3. Owners or residents served by mailboxes, at time of original installation, will:
- a. If using individual mailboxes, clustered or separate, install and thereafter maintain their own mailboxes as instructed by the post office.
 - b. If CBU delivery, rely on Post Office to provide and maintain the CBU's.

4. Builders or their contractors shall:

- a. Where there are existing mailboxes and no plans to replace them with CBU's:

When it becomes necessary to remove or otherwise disturb existing mailboxes within the limits of any project, install the boxes temporarily in such a position that their function will not be impaired. After construction has been completed, reinstall boxes at original locations or at new approved locations, as indicated on the plans or as directed by the City Engineer. Use only existing posts or materials except that any damage caused by the builder or his contractor is to be repaired at the expense of the builder.

- b. Where there are existing NDCBU's or plans to install new CBU's:

Call on the Covington Postmaster to install new CBU's and make the necessary installation.

B. Installation methods are as follows:

1. Mailboxes in general, shall be set in accordance with the Standard Details. Boxes shall be clustered together when practical and when reasonably convenient to the houses served.
2. CBU's will be installed by the United States Postal Service in general accordance to their standard details.

5.05 Street Illumination

Continuous illumination will be required for channelization accommodating additional lanes including the tapers. Illumination will also be required as identifiers where streets intersect arterials or for frequently used pedestrian areas on arterials.

Widening of arterials with existing continuous illumination will require maintaining the continuous illumination. Widening to the ultimate street width will require illumination designed to current construction practices.

Illumination intensity and uniformity shall conform to the following City of Covington design practices:

1. Residential/Local Access Streets
100W high pressure sodium (HPS) King model 424 luminaires on 12' Mounting Height, Fluted Dark Green, Washington base, Shakespeare brand Fiberglass Poles.

IES Illuminance Method – Recommended Value, local-medium (minimum)

Design layout: Staggered, 75' spacing, one light at opposite corners at “3 or 4 way” intersections.

2. Arterial and Commercial/Industrial Streets – 3 Lane
200W HPS flat-lens, northwest green cobrahead luminaires on 30' MH dark green, mast arm, Shakespeare fiberglass poles.

IES Illuminance Method – Recommended Value, collector-high (minimum).

Design layout: Staggered, 85' spacing.
3. Arterial and Commercial/Industrial Streets – 5 Lane
250W HPS flat-lens, northwest green cobrahead luminaires on 30' MH dark green, mast arm, Shakespeare fiberglass poles

IES Illuminance Method – Recommended Value, collector-high (minimum).

Design layout: Staggered, 85' spacing.

(Exception: SR 516 where the lights are a combination of 40 and 50 foot galvanized steel, davit arm poles and cobra head luminaires.)
4. Covington Downtown Subarea
150W Metal Halide (MH), dark green, Cyclone Lighting model CY 1701 luminaires, on Hapco 14', dark green poles with (2) single breakaway banner arms, length TBD (streetside), (1) single plant support (pedestrian side).

IES Illuminance Method – Recommended Value, collector-high (minimum).

Design layout: Staggered, 85' spacing.

In each case above, Engineered Locations to be determined by proper lighting design methods; spacing distances given above are for rough estimation only.

City of Covington is responsible for designating the street classification.

PSE / INTOLIGHT will design, engineer, provide, install, own and maintain the lighting system for the benefit of the City of Covington.

5.06 Survey Monuments

- A. Survey monuments shall be placed at all street intersections, boundary angle points, points of curves in streets and at such intermediate points as may be required by the City Engineer.
- B. All existing survey monuments and appurtenances, which are disturbed, lost or destroyed during surveying or construction, shall be replaced by a land surveyor registered in the State of Washington at the expense of the responsible developer, builder or utility, in general accordance with RCW 58.09.130 and 58.04.015.

- C. Plat monumentation shall comply with these standards on developments such as residential subdivisions, short plats, commercial site developments, binding site plans, or any other construction that establish new roadways or reconstruct existing roadways. Monuments shall be set along the center of the right-of-way at the PC's and PT'S of curves. When the PI of the curve falls within the paved area of the road, a PI monument may be set in lieu of setting monuments at the PC and PT.
- D. All lot and block corners shall be set with an iron pipe or steel reinforcing bar at least 24 inches in length within 90 days after recording of the plat. All lot corners shall be identified with the land surveyor's registration number.
- E. Street monument cases, in conformance with the Standard Details, shall be installed within 60 days after the final course of surfacing has been placed.

5.07 Street Barricades

Temporary and permanent barricades shall conform to the standards described in Section 6C-8 of the Manual on Uniform Traffic Control Devices (MUTCD) and the Standard Details.

- A. Type I or Type II barricades may be used when traffic is maintained through the area being constructed or reconstructed.
- B. Type III barricades may be used when streets and/or proposed future streets are closed to traffic. Type III barricades may extend completely across a street (as a fence). Where provision must be made for access of equipment and authorized vehicles, the Type III barricades may be provided with movable sections that can be closed when work is not in progress, or with indirect openings that will discourage public entry. Where job site access is provided through the Type III barricades, the developer/contractor shall assure proper closure at the end of each working day.
- C. In general, Type III permanent barricades shall be installed to close arterials or other through streets hazardous to traffic. They shall also be used to close off lanes where tapers are not sufficiently delineated.
- D. Type III barricades shall be used at the end of a local access street terminating abruptly without cul-de-sac bulb or on temporarily stubbed off streets. Each such barricade shall be used together with an end-of-street marker. For streets that will be extended in the future, a Type III barricade shall be placed at the end of the right of way with a sign stating "STREET TO BE EXTENDED IN THE FUTURE".
- E. Type III barricades may be required at other locations, as directed by the City Engineer.

5.08 Bollards

When necessary to deny motor vehicle access to an easement, tract, or trail, except for maintenance or emergency vehicles, the point of access shall be closed by a line of bollards.

- A. This closure shall include one or more fixed bollards on each side of the traveled way and removable, locking bollards across the traveled way.
- B. Spacing shall provide one bollard on the centerline of trail and other bollards spaced at a minimum of 50 inches on center on trails 10 feet wide or less measured from the center post in the center of the trail. Spacing shall be 60 inches on center on trails wider than 10 feet.
- C. Bollards shall be located in accordance with Section 5.12 Roadside Obstacles.
- D. Bollard design shall be in accordance with the Standard Details or other design acceptable to the City Engineer. No fire apparatus access streets shall be blocked in this manner without the concurrence of the Fire Marshal.

5.09 Guardrail/Embankment Heights

Guardrail installations shall conform to WSDOT Standard Plan C-1, Beam Guardrail Type 1 and C-2, Guardrail Placement. End anchors shall conform to WSDOT Standard Plan C-6, Beam Guardrail Anchor Type 1.

Evaluation of embankments for guardrail installations shall be in accordance with the WSDOT Design Manual.

5.10 Off-Street Parking Spaces

The number of off-street parking spaces required and specifications shall conform to Covington Municipal Code 18.50, as updated.

5.11 On-Street Parking Required

On-street parking should be incorporated into all designs of non-arterial streets, both residential and commercial land uses. Said parking should be located on both sides of the street and the minimum stall width should be eight feet.

Where on-street parking is provided in Downtown Commercial zones, the area will be striped and not the individual stalls. Intersections and alley connections to these streets shall be bulbed out the depth of the required parking at the intersection and alley points, in accordance with the Standard Details.

5.12 Roadside Obstacles

Non-yielding or non-breakaway structures, including retaining walls, rock facings and rockeries, which may be potential hazards to the traveling public, shall be placed with due regard to safety.

- A. On streets with a shoulder or mountable curb, hazardous objects shall be placed as close to the right-of-way line as practical and a minimum of 10 feet from the edge of the traveled way or auxiliary lane.
- B. On streets with a vertical curb section, hazardous objects shall be placed as far from the edge of the traveled way or auxiliary lane as practical.
- C. Roadside obstacles shall not be placed in a sidewalk or less than two feet from the face of the curb.
- D. Placement of any utility structures shall be in accordance with requirements of Chapter 8.

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CHAPTER 6 BRIDGES

6.01 Principal References

Except as specified below, City of Covington bridges, whether on public streets or on private streets serving subdivided land, shall be designed and constructed to meet the minimum requirements set forth in the latest edition, including all interim addenda, of "Standard Specifications for Highway Bridges," adopted by AASHTO and in accordance with the requirements of WSDOT Standard Specifications. Bridge and approach railings shall be provided in accordance with those references or with WSDOT Standard Plans. All new bridges shall be designed to carry an AASHTO HS 20-44 live load or greater. All bridgework shall comply with Covington Municipal Code 18.65 regarding Special Control Areas and Flood Hazard Areas for stream and wetland protection and flooding concerns.

6.02 Bridge Geometrics

- A. In the general case, the bridge shall comprise the full width and configuration of the street being served - traveled way plus curb, sidewalks, walkway, bike lane and/or shoulder on both sides. Requirements of utilities shall be duly considered. Bridge street width shall be measured between curbs or between faces of rails, whichever is less, but in no case shall be less than 28 feet.
- B. Where typical speed is 30 MPH or higher and significant pedestrian and/or bike traffic can be expected, the City Engineer may require that the lanes for these other modes of traffic be separated from motor vehicle traffic by use of a bridge traffic rail and further protected by a rail at outer edge. On designated bike routes, combination traffic and bicycle railings shall be used.
- C. Approach railings shall be made structurally continuous with bridge railings and shall meet AASHTO specifications as cited in Section 6.01 above.
- D. Overhead vertical clearances for motor traffic on the traveled way or under overpasses shall be 16.5 feet minimum. Vertical clearance of structures above a walkway or sidewalk shall be ten feet minimum, 12 feet for equestrian facilities.
- E. The height of bridge clearance above streams shall be as required by the Surface Water Design Manual, but in no case less than 3 feet above 100-year flood plain elevation.

6.03 Bridge Design Criteria

- A. Approach slabs will be required for all bridges and new bridge plans shall provide pavement seats for approach slabs unless otherwise approved by the City Engineer. Waiver or modification of the requirement for approach slabs will be considered only on the basis of adequate geotechnical analysis. Approach slabs shall be constructed in accordance with WSDOT/APWA Standard Plan A-2.

- B. New bridge decks and approach slabs shall be designed with a protective system to prevent corrosion of the reinforcing steel.
- C. The design of bridge expansion joints shall consider the presence of bicycle traffic.

6.04 Special Permits

Permit requirements for construction or reconstruction of bridges include but are not limited to the following:

- A. Bridges involving deposition of material in waters of the United States or their adjacent wetlands require a U. S. Army Corps of Engineers Permit.
- B. Any work involving alteration of flow or bed materials below the ordinary high water line of any water body or water course requires a Hydraulic Project approval from the State Department of Fisheries or the State Department of Wildlife.
- C. Any work within waters of the State requires a Water Quality Certification Waiver from the State Department of Ecology.
- D. Where bridge structures lie on or over submerged lands a lease from the Washington State Department of Natural Resources may be necessary.
- E. Structures located in defined shoreline zones, as defined in the Covington Municipal Code, require a shoreline specific development permit from the City of Covington Department of Community Development, subject to concurrence of the State Department of Ecology.
- F. Bridges over waterways require the City Engineer's approval of the size and shape of the hydraulic opening, the height of the superstructure over high water, the location of piers, channel improvement, and other hydraulic considerations.

CHAPTER 7 DRAINAGE

7.01 General

- A. Designs: Stormwater management facilities shall be designed consistent with City Code Titles 13, 15 and 18. Stormwater management facilities shall be designed and constructed as specified in these standards and as shown in the 700 Series Standard Details.

A comprehensive Drainage Report shall be prepared to support the design of any stormwater management facilities. The Drainage Report shall contain all of the technical information and analysis necessary to evaluate the proposed new development or redevelopment project for compliance with the adopted stormwater manual. Contents of the drainage report will vary with the type and size of the project and the individual site characteristics.

Connections to an existing system shall avoid directing project runoff through downstream quality/quantity control facilities. Receiving systems may have separate conveyance facilities: one connecting to quality/quantity facilities and one by-passing them. Connection shall be to the by-pass system, where available.

- B. Specifications: Materials, construction, and testing are specified in the WSDOT Standard Specifications. The City Engineer may amend, delete, or add specifications or Standard Drawings.
- C. Details: See the adopted stormwater manual for additional details, not included in these standards.
- D. Conflicts: Where technical conflicts may occur between this document and the adopted stormwater manual, the City Engineer shall decide which document governs.

7.02 Roadside Ditches

The following standards shall apply in design of roadside drainage ditches:

- A. On grades up to 6 percent, grass lined ditches, with a grass seed mix as specified in 7.10, shall be used for the drainage requirement. These ditches shall be designed and constructed in accordance with the adopted stormwater manual, as amended.
- B. Where the grade is over 6 percent and not over 9 percent, the City Engineer may direct use of a standard rock-lined ditch or alternatively a closed (pipe) drainage system under a paved shoulder with asphalt curb or turnpike shoulder. As an exception, cul-de-sacs with over 6 percent grade shall be provided with pipe drainage and not with rock-lined ditches.

1. The standard rock lining shall be in accordance with the adopted stormwater manual, the WSDOT Hydraulic Manual, and the applicable section of the WSDOT Standard Specifications.
 2. Rocks shall be placed to form a firm, dense, protective mat, conforming to the designed surface of the ditch, consistent with Standard Detail 757 (Rock-Lined Roadside Ditch). Individual rocks shall not protrude more than three inches from that surface.
- C. Where the grade exceeds 9 percent, drainage ditches are not allowed, pipe drainage is required. Pipe drainage shall be documented in the Drainage Report and incorporated into the street and drainage plans. Curb and gutter shall be provided as required by the street standards.

7.03 Storm Conveyance Channels

- A. The centerline and flow direction of all existing, altered and proposed storm conveyance channels shall be documented in the Drainage Report and incorporated into the street and drainage plans.
- B. The hydraulic grade line shall be computed for any existing, altered and proposed storm conveyance channel, as deemed necessary by the City Engineer.
- C. The design engineer shall verify channel wall stability and specify appropriate measures to ensure adequate stability for the 25-year storm event. Maximum permissible channel velocities, based on soil type and ground cover, shall be in accordance with the adopted stormwater manual, as amended. Grass seed mix shall be as specified in section 7.10. Channel stabilization may include rip-rap lining if channel velocities are determined to be excessive.
- D. Minimum storm conveyance channel freeboard shall be 1/3 the calculated flow depth for the 25-year storm event.
- E. Storm conveyance channels crossing property lines that may be fenced will not be allowed.

7.04 Storm Sewers and Culverts

- A. Minimum pipe size shall be 12-inch diameter. Eight-inch diameter may be permitted on cross street laterals less than 66 feet long to avoid utility conflict or meet shallow gradient.
- B. Analysis methods for pipe sizing shall be in accordance with the City Code and the adopted stormwater manual, as amended.
- C. For any drainage pipe grade less than 0.5% (0.0050 ft/ft), a professional Land Surveyor shall verify that the as-built pipe matches the grades noted on the approved plans prior to completion of subgrade. The contractor is responsible for survey coordination and costs.

- D. Pipe materials shall be determined based on the WSDOT Hydraulics Manual for Corrosion Zone II, and shall meet the requirements of Section 9-05 of the WSDOT Standard Specifications. Pipe materials shall be as specified in the approved Drainage Report, when required.
- E. Pipe foundation materials and pipe zone bedding material shall be in accordance with Section 9-03.12(3) of the WSDOT Standard Specifications. Native soils may be used if certified by a geotechnical engineer to meet the specification.
- F. Storm pipe cover, measured from the finished grade elevation to the top of the outside surface of the pipe, shall be 2 feet minimum (3 feet for PVC), unless authorized by the City Engineer under the following circumstances:
 - 1. Under drainage easements, driveways, parking stalls or other areas subject to light vehicular loading, the pipe cover may be reduced to 1 foot minimum if the cover is consistent with the manufacturer's recommendations.
 - 2. In areas not subject to vehicular loads, such as landscape planters and yards, the pipe cover may be reduced to 1 foot minimum.
 - 3. If ductile iron pipe is used, the pipe cover may be reduced to 1 foot minimum.
- G. All driveway culverts located within the right-of-way shall be of sufficient length to provide a minimum 3:1 slope from the edge of the driveway to the bottom of the roadside ditch. Culverts shall have beveled end sections to match the side slope.
- H. All storm pipe shall be subject to a low pressure air test in accordance with Section 7-04.3(1)F of the WSDOT Standard Specifications.
- I. All thermoplastic storm pipe shall be tested for deflection in accordance with Section 7-17.3(2)G of the WSDOT Standard Specifications.
- J. All storm pipe shall be inspected by television camera with a City Inspector present during the inspection. A written report of the inspection and copy of the inspection video (on DVD, labeled with date, street name and distance recorded) shall be submitted to the City. Storm pipe failures will follow the above procedures until accepted by the Inspector.

7.05 Drainage Structures

- A. Catch basins shall be spaced no greater than 150 feet for grades less than one percent, 200 feet for grades between one and three percent; and 300 feet for grades three percent and greater. Where the width of the tributary street surface exceeds 35 feet, the cross slope exceeds four percent or the proposed design has the potential for a point discharge of more than 0.1 cfs, an inlet capacity analysis is required. The inlet capacity analysis shall be prepared in general accordance with Chapters 4 and 5 of the WSDOT Hydraulic Manual and must show that the gutter flow does not extend more than eight feet into the traveled way for the 25-year storm event, using flow rates calculated by the rational formula.

- B. Catch basins shall be used within the right-of-way, rather than inlets, to collect stormwater runoff from street surfaces, unless approved by the City Engineer.
- C. Use Type 2 catch basins where the depth from final rim elevation to invert of the lowest pipe exceeds five feet.
- D. Catch basins are required when joining differing sizes and/or types of pipes.
- E. When connecting to an existing drainage structure, the existing structure shall meet current standards or be removed and replaced with a new structure.
- F. Grout all joints inside, outside and in between to achieve water tight construction. Inside joints of the structure shall be finished smooth. Storm pipes shall extend one to one and one half inches (1" to 1.5") into the catch basin.
- G. Catch basins shall not be located within or in front of driveways or cross-walks.
- H. Precast concrete drywells may be used for subsurface stormwater disposal in soils with very rapid permeability. Stormwater treatment facilities must precede any infiltration system when pollution generating surfaces contribute to the runoff, as outlined in the adopted stormwater manual. Drywells shall be fabricated and installed in accordance with Sections 7-05 and 9-12.7 of the WSDOT Standard Specifications, and Standard Detail 719.

Project engineers are responsible for registering all drywells and infiltration systems as new Underground Injection Control (UIC) wells with the Department of Ecology, as outlined in Section 7.12 (Underground Injection Control).

7.06 Frames, Grates and Covers

- A. All catch basin grates shall conform to Standard Detail 726 (Vaned Grate) when located within the right-of-way. A herringbone grate may be used outside the right-of-way.
- B. All catch basin grates shall include an open curb face frame, in accordance with Standard Detail 727(combination inlet), when located in a sump condition or before an intersection with a 4% grade or above. Combination inlet catch basins may be required where deemed necessary by the City Engineer.
- C. Any drainage structure not receiving surface runoff and not located within a traveled roadway shall have a solid locking lid, in accordance with Standard Detail 728. Any drainage structure associated with a permanent retention/detention facility, not receiving surface runoff, shall have a solid locking lid.
- D. All storm drain grates and covers shall be locking. Manufacturer shall be approved by the City Engineer.

7.07 Roof Downspout Controls

- A. Roof downspout control BMP's shall be designed and constructed in accordance with the adopted stormwater manual, as amended, and shall be documented in the Drainage Report and incorporated into the street and drainage plans.
- B. Direct discharge of roof downspouts, yard drains or other concentrated flow from adjacent property shall not discharge over the surface of streets or sidewalks.

7.08 Trenching

See Section 8.03 (Underground Utility Installation).

7.09 Erosion Control

- A. Erosion control BMP's shall be provided in accordance with the adopted stormwater manual, as amended, and shall be documented in the Drainage Report and incorporated into the street and drainage plans.
- B. Material specifications for erosion control shall be in accordance with the adopted stormwater manual, as amended. Any variations or deviations shall be documented in the Drainage Report and will be subject to approval by the City Engineer.

7.10 Grass Seed Mixes

All grass seed mixes shall contain fresh, clean, new crop seed. The required method of seeding shall be by an approved hydroseeding company, which utilizes water as the carrying agent, and maintains continuous agitation through paddle blades. It shall have an operating capacity sufficient to agitate, suspend, and mix into a homogeneous slurry the specified amount of seed, water, fertilizer and mulch. Temporary or permanent irrigation systems may be required by the City Engineer to ensure plant growth, depending upon seed mix and when it is applied.

Grass seed mixes shall be composed of the following varieties mixed in the proportions indicated, shall meet the minimum percentages of purity and germination, and shall be applied at the rate of 120 pounds per acre, unless otherwise specified on the approved plans.

<u>Grass Name</u>	<u>Proportion by Weight</u>	<u>% Purity</u>	<u>% Germination</u>
<u>Standard Grass:</u>			
Perennial Ryegrass	50%	98%	95%
Creeping Red Fescue	20%	98%	95%
Chewings Fescue	20%	98%	95%
Kentucky Bluegrass	10%	98%	95%

The Standard Grass mix shall be used for all hydroseed applications, including roadside ditches, unless otherwise specified in the approved plans.

<u>Grass Name</u>	<u>Proportion by Weight</u>	<u>% Purity</u>	<u>% Germination</u>
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Turf Grass:

Perennial Ryegrass	40%	95%	90%
Creeping Red Fescue	10%	95%	90%
Chewings Fescue	10%	95%	90%
Kentucky Bluegrass	5%	95%	90%
Alta Tall Fescue	20%	95%	90%
Annual Ryegrass	15%	95%	90%

The Turf Grass mix shall be used exclusively for seeded areas adjacent to grass lawns and within landscape strips.

Biofiltration Swale:

Perennial Ryegrass	15%	95%	90%
Intermediate Wheatgrass	45%	95%	90%
Creeping Red Fescue	10%	95%	90%
Tall Fescue	30%	95%	90%

The Biofiltration Swale mix shall be used in all drainage swales or drainage channels as identified on the approved plans, and in all other areas identified as maintained waterway areas, where no other seed mix is specified.

Wetland Grass:

Redtop Bentgrass	35%	95%	90%
Meadow Foxtail	35%	95%	90%
Oxeye Daisy	10%	95%	90%
Russian Wildrye	10%	95%	90%
Red Fescue	7%	95%	90%
Blackeyed Susan	2%	95%	90%
Birdsfoot Trefoil	1%	95%	90%

Temporary Erosion Control Grass:

Annual or Perennial Ryegrass	40%	98%	90%
Chewings or Red Fescue	40%	98%	90%
White Dutch Clover	10%	98%	90%
Redtop or Colonial Bentgrass	10%	92%	85%

7.11 Low Impact Development

- A. Projects incorporating Low Impact Development (LID) stormwater BMPs shall document the design of the proposed BMPs in the design plans and Drainage Report. LID BMPs shall be in accordance with the adopted Stormwater Manual in Title 13 of the Covington Municipal Code.
- B. Preservation of LID BMPs, land use covenants and restrictions, and maintenance requirements shall be documented in the design plans and Drainage Report. LID BMPs and associated areas that are restricted for land modifications shall be shown on approved site plans.

7.12 Stormwater Runoff Treatment

All land developed within the City of Covington shall incorporate stormwater runoff treatment facilities to mitigate the potential for surface and groundwater degradation. Where favorable soil conditions exist, the preferred treatment mechanism is the infiltration of stormwater runoff through a grassed area, commonly known as a biofiltration or bio-infiltration swale. Sizing of the biofiltration or bio-infiltration swale shall follow the prescribed method outlined in the adopted stormwater manual. Adequate sizing is necessary to insure that the various physical, chemical and biological processes, active within the root zone, have sufficient time to remove the pollutants.

In areas where favorable soil conditions do not exist, alternate systems which meet or exceed the contaminant removal levels prescribed in the adopted stormwater manual may be used, subject to approval of the City Engineer.

7.13 Underground Injection Control

- A. Projects incorporating infiltration for stormwater management BMPs shall review WAC 173-218, Underground Injection Control program to determine if the facility meets the definition of a Class V injection well. The determination shall be documented in the Drainage Report.
- B. Projects meeting the definition of a Class V injection well and which require registration shall register the facility with the Washington State Department of Ecology. The project proponent is responsible for registering the facility. Registration forms are available on the Department of Ecology's UIC website. A copy of the registration submitted to Ecology shall be submitted to the City.
- C. Construction approval shall not be granted until proof of registration submittal is submitted to the City.

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CHAPTER 8 UTILITIES

8.01 Franchising Policy and Permit Procedure

- A. Utilities to be located within existing and proposed City street right-of-way shall be constructed in accordance with current franchise and/or permit procedure, and in compliance with these Standards. In their use of the right-of-way, utilities will be given consideration in concert with the traffic-carrying requirements of the street, which are to provide safe, efficient and convenient passage for motor vehicles, pedestrians, and other transportation uses. Aesthetics shall be a consideration. Underground installation of utilities is required. Utilities are subject to City policies relating to drainage, erosion and sediment control, and sensitive areas, as set forth in Covington Municipal Code Chapters 13 and 18.65.
- B. All permits for replacement of existing utility poles or other new or existing utility structures above grade shall be accompanied by written certification from a professional engineer or agent authorized by the utility to certify that the installations conform to these Standards and that the proposed work is in conformity with sound engineering principles relating to roadway safety.

8.02 Standard Utility Locations within the Right-of-Way

Utilities within the right-of-way on new streets shall be located as shown in the Standard Details. Utility locations shown in the Standard Details shall be used where existing topography, utilities or storm drains are not in conflict. Where existing utilities or storm drains are in place, new utilities shall conform to these Standards as nearly as practicable and yet be compatible with the existing installations. Utilities located within intersections shall be placed so as to avoid conflict with placement of curb ramps.

- A. Sanitary sewer and water lines shall be separated in accordance with good engineering practice, such as the Criteria for Sewage Work Design, Washington Department of Ecology, current edition.
- B. Gravity systems, whether sanitary or storm sewer, shall have precedence over other systems in planning and installation. Where practical, non-gravity systems that have already been installed under previously approved permits shall have precedence over gravity systems where such non-gravity systems are subject to applicable provisions of such permits or franchises. However, non-gravity systems shall be adjusted or relocated where required as determined by the City Engineer.
- C. Storm drainage systems shall be located in accordance with Section 7 or as approved by the City Engineer.
- D. Electric utilities, power, telephone, optic cable, cable TV, etc. shall be located underground with 36 inch minimum cover, either side of street, at plan location and depth compatible with other utilities and storm drains, unless otherwise approved by the City Engineer.

- E. Notwithstanding other provisions, underground systems shall be located at least five feet away from street centerline and where they will not otherwise disturb existing survey monuments.
- F. Underground utilities that can use a joint trench shall have the option of occupying any other utility company's standard location if that company is a participant in the joint trench installation.
- G. Any utility company may use another utility company's standard location provided they obtain written approval from that company. A copy of the approval document shall be submitted to the City Engineer prior to utility installation.

8.03 Underground Utility Installation

- A. Underground utility installation shall follow applicable sections of Chapter 7 of the WSDOT Standard Specifications, unless otherwise stated below.
- B. Utility Cuts on Existing Traveled Streets
 - 1. Excavation in City streets within five years of street paving is prohibited in accordance with Chapter 12.115 of the Covington Municipal Code.
 - 2. Existing pavement:
 - a. In trenching through existing pavement, the open cut shall be a neat-line cut made by saw cutting a continuous line ONLY. Trench sides shall be kept as nearly vertical as possible. Compaction and restoration must be done as detailed below and immediately after the trench is backfilled to cause the least disruption to traffic. The existing pavement shall be cut one foot outside the edge of the trench on each side, in accordance with the Standard Details. The length of the cut will be determined by the Inspector after a review of surrounding pavement condition, and may not terminate at a failing street segment.
 - b. Backfill shall be placed and compacted mechanically in six-inch lifts, in accordance with Section 2-03.3(14)D of the WSDOT Standard Specifications. If the capacity can be demonstrated, based on compaction equipment or quality of backfill to achieve 95 percent dry density in thicker lifts, the depth of backfill lifts may be increased up to one foot. After backfill and compaction, a cold patch shall be immediately placed and maintained in a manner acceptable to the City Engineer.
 - c. On asphalt pavement, a permanent hot mix patch of the same thickness as the existing asphalt or a minimum of three inches, whichever is the greater, shall be placed and sealed with paving grade asphalt within 30 calendar days. Cement concrete pavement shall be connected to existing concrete pavement with rebar and

restored with a six-sack mix, using either Type II or Type III cement, within 30 calendar days.

- d. Final trench restoration shall include a minimum of six and one-half inches of crushed surfacing material and Class B asphalt concrete of the same thickness as the existing asphalt pavement or a minimum of two inches, whichever is the greater. Pavement shall then be overlaid full width with a minimum of one and one-half inch compacted Class B asphalt concrete. Any exceptions to this overlay requirement will be on a case-by-case basis, subject to approval by the City Engineer, considering the existing conditions of the pavement. Overlays may not terminate at a failing street segment. Concrete pavement shall be restored consistent with Section 5-01 of the WSDOT Standard Specifications. Any concrete pavement traffic lane affected by the trenching shall have all affected panels replaced.

3. In cuts parallel to street alignment:

- a. In any trench in which 95 percent density cannot be achieved with native backfill, the top four feet shall be replaced with gravel base as specified in Section 9-03.10 of the WSDOT Standard Specifications. This new material shall then be mechanically compacted to 95 percent of its dry density.
- b. Alternatively, the trench may be backfilled with controlled density fill (CDF) of a design mixture approved by the City Engineer. Restrained steel plate(s) shall cover the CDF for 48 hours minimum prior to placement of pavement.

4. In cuts transverse to street alignment:

- a. In general, utility trenching through existing pavement across the street alignment will be discouraged. It will not be permitted unless it can be shown that alternatives such as boring or jacking are not possible due to conflicts or soil conditions, or unless the utility can be installed just prior to reconstruction or overlay of the street.
- b. Without exception, the entire trench shall be backfilled with 1 ¼"-minus crushed surfacing base course (CSBC) meeting the requirements of Section 9-03.9(3) of the WSDOT Standard Specifications. This material shall then be mechanically compacted to 95 percent of its dry density.
- c. Alternatively, the trench may be backfilled with controlled density fill (CDF) of a design mixture approved by the City Engineer. Restrained steel plate(s) shall cover the CDF for 48 hours minimum prior to placement of pavement.

C. Controlled Density Backfill (CDF):

As an alternative to mechanical compaction, trench backfill above the bedding and below the street section base course or ATB may be accomplished by use of controlled density backfill (CDF) in accordance with Section 2-09.3(1)E of the WSDOT Standard Specifications. The design mixture shall be based on ACI 229 and shall be approved by the City Engineer prior to use.

For over-trench crossings, required to be opened to traffic prior to final trench restoration, restrained steel plates shall be used as approved by the City Engineer.

D. Testing:

1. Consistent with the above and prior to placing any surface materials on the street; it shall be the responsibility of the developer to provide density test reports certified by a professional engineer. A minimum of one test shall be performed and one additional test every 100 feet of trench length and at depths up to 50 percent of trench depth, or as directed by the City Engineer. Compaction of laterals or service line trenches shall be tested where directed by the City Engineer.
2. Testing of CDF shall be in accordance with ASTM D4832, Low Strength Material Test Cylinders.

E. Notification and Inspection:

1. Consistent with Section 9.02 of these Standards, any developers, utilities, or others intending to trench in existing or proposed traveled City streets shall notify the City of Covington Community Development Department not less than one working day prior to doing the work. This notification shall include:
 - a. Permit number,
 - b. Location of the work,
 - c. Contact name and phone number,
 - d. Method of compaction to be used,
 - e. Day and hour when compaction is to be done, and
 - f. Day and hour when testing is to be done.

Inspection Request Line 253-638-1110 Ext. 2222

2. As set forth in Section 9.03 of these Standards, failure to notify may necessitate testing or retesting by the City of Covington at the expense of the Developer or Utility. Furthermore, the work may be suspended pending satisfactory test results.

8.04 Final Utility Adjustment (To Finish Grade)

All utility covers and access entries shall be placed at subgrade elevation prior to placing any crushed surfacing material. If the final lift of paving is delayed beyond 30 days, all utility covers shall be raised to the intermediate surface elevation, typically 1 ½" to 2" below finish grade. Final adjustment for utilities within paved areas may be achieved either before or after the final paving is completed, under the following conditions:

- A. Pre-paving adjustment: Final adjustment of all covers shall be made prior to placement of the final lift of paving, and shall be adjusted to match the proposed centerline grade and cross-slope.

Upon completion of final paving, the City Construction Inspector will evaluate the uniformity of each utility cover and access entry to the finished street grade and cross-slope. If a utility cover varies $\pm \frac{1}{2}$ " from the adjacent paving surface, the cover shall be readjusted in accordance with the post-paving adjustment procedures.

- B. Post-paving adjustment: Final adjustment of all covers shall be made following final paving by:
 1. Saw-cutting of the pavement around lids and covers. Opening should not be larger than 12 inches beyond the radius of the cover.
 2. Removing base material, surfacing course, and frame; adding appropriate risers; replacing frame and cover at finished grade of pavement, adjusted to match the centerline grade and cross-slope.
 3. Filling and mechanically compacting around the structure and frame with Asphalt Concrete Pavement (ACP) to finished grade or with crushed surfacing top course to within one inch below existing asphalt (four inch minimum) from finished grade and filling the remaining space with ACP.
 4. All asphalt shall be compacted and sealed to provide a dense, uniform surface, per WSDOT Standards Specifications.
 5. Final adjustment of all covers and access entries shall be completed within 30 days of final paving.

8.05 Final Cleanup and Restoration of Surface Drainage and Erosion Control

In addition to restoration of the street as described above, the responsible utility shall care for adjacent areas in compliance with Sections 1-04.11 "Final Cleanup" and 8-01 "Erosion Control" in the WSDOT Standard Specifications. In particular:

- A. Streets shall be cleaned and swept both during and after the installation work.
- B. Disturbed soils shall be final graded, seeded in accordance with Section 7.10 and mulched after installation of utility. In limited areas, seeding and mulching by

hand, using approved methods, will be acceptable. Disturbed areas shall be restored to a condition equal or better than the original condition.

- C. Ditch lines with erodible soil and subject to rapid flows may require seeding, jute matting, netting, or rock lining to control erosion or additional measures, as required.
- D. Any silting of downstream drainage facilities, resulting from the utility installation, shall be cleaned out and restored to a stable condition as part of site cleanup.
- E. Erosion control BMP's shall be removed as the final step of the site cleanup.

CHAPTER 9 CONSTRUCTION CONTROL AND INSPECTION

9.01 Basis for Control of the Work

- A. Work performed in the construction or improvement of City streets or private property shall be completed in accordance with these Standards and approved plans and specifications. No work may be started until such plans are approved by the City of Covington. Any revision to such plans shall be approved by the City Engineer before being implemented.
- B. The City Engineer is authorized to enforce these Standards, as well as other referenced or pertinent specifications. The City Engineer will appoint project engineers, assistants, and inspectors as necessary to inspect the work and they will exercise such authority as the City Engineer may delegate.
- C. Provisions of Section 1-05 of the WSDOT Standard Specifications shall apply, with the term "Engineer" therein construed to be the City Engineer as defined in Section 1.12 (Meaning of Terms).
- D. The developer is ultimately responsible for quality control and the assurance that construction of streets, drainage facilities and appurtenances are in compliance with these Standards, the approved plans and specifications, and the applicable portions of the WSDOT Standard Specifications through independent construction inspection and materials testing.
- E. The City's Construction Inspector, acting on behalf of the City Engineer, may make random visits to the construction site. These random visits are to ensure a quality construction inspection process and do not express nor imply approval or disapproval of the contractor's work. The City Construction Inspector shall have access to all construction inspection records, mark-ups and reports.

9.02 Subdivision, Commercial and Right-of-Way Land Use Inspection

On all street and drainage facility construction, proposed or in progress, which relates to subdivision, commercial and/or right-of-way development, control and inspection will be monitored by the City Construction Inspector. The construction inspector has enforcement authority when standards and requirements are not met. All materials shall be subject to inspection and approval by the City Construction Inspector.

Prior to any critical tasks being started, the developer/contractor shall contact the City Inspector, with proper advanced notification, based on the following criteria:

- A. Pre-construction Conference: Five working days prior notice.

A pre-construction conference shall precede any site construction and shall be attended by the contractor, design engineer, inspectors, utilities, and other affected parties. Plan approvals and permits must be in hand prior to the

conference. With all pre-construction requirements satisfied, the conference will end with the issuance of the "Notice to Proceed". No site work shall commence prior to issuance of the "Notice to Proceed".

- B. Clearing and Temporary Erosion/Sedimentation Control: One working day prior notice.

Initial site work typically involves clearing and/or the installation of temporary erosion and sedimentation control BMP's. Such work to be in accordance with Section 7.09 (Erosion Control) and the approved plans.

- C. Utility and Storm-Drainage Installation: One working day prior notice.

Trenching and placing of storm sewers and underground utilities, such as sanitary sewer, water, gas, power, telephone, and TV lines, shall follow Section 8.03 (Underground Utility Installation).

- D. Utility and Storm Drainage Backfill and Compaction: One working day prior notice.

Backfill and compaction of underground utilities and storm sewers shall follow Section 2-09.3(1)E of the WSDOT Standard Specifications.

- E. Subgrade Completion: One working day prior notice.

Inspections shall be scheduled for the stage that underground utility and/or storm drainage installation is complete and inspected, and street grading is complete. Inspections will include compaction tests and certifications, as described in Sections 8.03 (Underground Utility Installation) and 9.04 (Construction Inspection and Control).

- F. Crushed Surfacing Placement: One working day prior notice.

Inspections shall be scheduled to check placement and compaction of crushed surfacing top course and/or base course, placed on completed and inspected subgrade. Inspections will include compaction tests and certifications in accordance with Chapter 3 and the Standard Details.

- G. Non-Structural Concrete Forming (curb, gutter, sidewalk, etc.): One working day notice.

Inspections shall be scheduled to verify subgrade compaction, proper forming and preparation prior to pouring concrete, in accordance with Section 3.01 (Driveways, Sidewalks, Curbs and Gutters).

- H. Non-Structural Concrete Placement and Finish (curb, gutter, sidewalk, etc.): One working day prior notice.

Inspections shall be scheduled to check placement and finish of concrete facilities, as specified in Chapter 3 and in the Standard Details.

- I. Paving: Three working days prior notice.

Inspections shall be scheduled for the stage that subgrade, crushed surfacing placement and/or curb and gutter is complete and inspected. A pre-paving meeting is required a minimum of 24 hours prior to beginning placement of asphalt and shall be attended by the general contractor, paving contractor and City Construction Inspector. Inspections will include compaction tests and certifications in accordance with Chapter 4 and the Standard Details.

- J. Structural: Three working days prior notice.

Inspections shall be scheduled at each critical stage, such as placing foundation piling or footings, placement and assembly of major components, and completion of structure and approaches. Tests and certification requirements will be as directed by the City Engineer.

- K. Final Construction Inspection: 15 working days prior notice.

A final inspection meeting shall be scheduled between the general contractor and the City Inspector for an overall check of the completed street or drainage facilities, including paving and associated appurtenances and improvements, cleaning of the drainage system, and all necessary clean-up and restoration. The City Construction Inspector will prepare a final construction punchlist for the developer. Prior to approval of construction work, acceptance for maintenance and release of construction performance bonds, the developer shall pay any required fees, submit any required maintenance and defect financial guarantees, provide a certificate of monumentation and receive approval of the as-built plans, as outlined in Section 9.10 (As-Built Documents).

- L. Final Maintenance Inspection: 30 days prior to the end of the maintenance period.

The City Construction Inspector will perform the final maintenance inspection and prepare a final maintenance punchlist for the developer. Prior to release of the maintenance guarantee, there shall be successful completion of the maintenance period as described in Section 1.10 (Penalties and Financial Guarantees), repair of any failed facilities noted in the final maintenance punchlist and the payment of any outstanding fees.

9.03 Penalties for Failure to Notify for Land Use Inspection

Timely notification by the developer, as noted above, is essential for the City to verify through inspection that the work meets the standards. Failure to notify in time may oblige the City to arrange appropriate sampling and testing after-the-fact, with certification, by a professional engineer. Costs of such testing and certification shall be borne by the developer.

If the test results conclude that the unauthorized work does not meet the standards, the contractor will be required to remove the unauthorized materials and replace with materials that meet the standards, at the developer's expense. At the time that such

action is directed by the City Engineer, the City Engineer may prohibit or limit further work on the development until all directed tests have been completed and corrections made to the satisfaction of the City Engineer. If necessary, the City may take further action as set forth in the Covington Municipal Code Title 1, Enforcement.

9.04 Control of Materials

All materials provided by the contractor shall be subject to inspection and approval by the City Inspector at any time during the progress of work until final acceptance. The contractor's construction schedule shall include sufficient time for materials testing and any required verification by the City Inspector.

The City Inspector has the authority to reject defective material and suspend work that is being done improperly. The City Inspector may advise the developer/contractor of any faulty work or materials; however, failure to advise does not constitute acceptance or approval. At the City Inspector's order, the developer/contractor shall immediately remedy, remove, replace, or dispose of unauthorized or defective work or materials, and bear all the costs of doing so.

- A. **Source of Supply and Quality of Materials:** The developer/contractor shall notify the City Engineer of the proposed sources of supply for all materials to be furnished. The City Engineer shall approve the source of supply of each material before delivery. Representative preliminary samples and/or test data of the character and quality prescribed may be required to be submitted for review by the City Engineer.

Only materials conforming to the requirements of the WSDOT Standard Specifications shall be used in the work, unless otherwise approved by the City Engineer. Any material proposed to be used may be inspected or tested at any time during their preparation and use. If, after testing, it is found that a source of supply does not furnish a uniform product, the contractor shall furnish approved materials from other approved sources. Any approved materials that become unfit shall not be used.

- B. **Samples and Tests:** At the direction of the City Engineer, the developer shall direct a certified testing laboratory to conduct necessary field and/or lab tests of materials or methods. All testing shall be in accordance with WSDOT, ASTM and/or AASHTO standards. Upon request, the developer/contractor shall furnish samples of all materials to the City Engineer. Materials shall not be used until approved.

The City Engineer shall be furnished certified copies of the complete test reports, directly from the testing laboratory.

9.05 Construction Inspection and Control

The provisions of Section 2-03 of the WSDOT Standard Specifications apply in all respects to development construction, unless otherwise instructed by the City Engineer. The following elements are mentioned for clarification and emphasis:

- A. Embankment and Cut Section Compaction: Compaction of the top two feet of fill subgrade and top six inches of cut subgrade shall meet a minimum 95 percent of maximum density in accordance with WSDOT Standard Specifications Section 2-03.3(14)C - Method B. Subgrade fill below the top two feet shall be compacted to 90 percent of maximum density.

Any embankment inaccessible to large compacting equipment shall be compacted with small mechanical or vibratory compactors. Controlled density fill (CDF), in accordance with Section 2-09.3(1)E of the WSDOT Standard Specifications, shall be used in areas that are difficult to reach with any type of compaction equipment. The moisture content of the material shall not vary more than 3% above or below optimum, as determined by the tests described in Section 2-03.3(14)D.

B. Density Testing

1. Prior to placing any surfacing material within the right-of-way, it will be the responsibility of the developer/contractor to provide density test reports reviewed and approved by a professional engineer and accepted by the City Inspector. Optimum moisture content and maximum density shall be determined by methods cited in Section 2-03.3(14)D of WSDOT Standard Specifications or by other test procedures approved by the City Engineer.
2. Compaction reports are required for all projects. The reports will include a description of the individual test locations and/or a sketch, when deemed necessary by the City Inspector. Compaction testing shall be accomplished as backfill or embankment construction progresses. At a minimum, compaction tests are required at the following locations and intervals, and where required by the City Inspector:
 - a. Embankment: In fill sections, one every 1,000 cubic yards or fraction thereof and on each lift of fill. In cut sections, one every 100 linear feet or 500 square yards, whichever results in a greater number of compaction tests.
 - b. Trench lines: One test shall be performed and one additional test every 100 feet of trench length and at depths up to 50 percent of trench depth. Compaction of laterals or service line trenches shall be tested where directed by the City Engineer.
 - c. Street and shoulder subgrade: At 50 foot intervals.
 - d. Curb and gutter (subgrade and crushed surfacing): At 150 foot intervals.
 - e. Crushed surfacing: At 100 foot intervals, and within each lane, as applicable.
 - f. Sidewalk, walkways or bikeways (subgrade and crushed surfacing, as applicable): At 150 foot intervals.

- g. Utility and drainage structures: One test shall be performed for every 2 feet of backfill, unless CDF is used.
 - h. Hot Mix Asphalt (HMA): A minimum of five density tests per 400 tons, or portion thereof.
 - i. Lot grading and embankment: A minimum of one test shall be taken at the approximate half width of every lot and on each lift of embankment.
3. For work to be accepted, compaction tests must show consistent uniform density across the total width of the embankment or backfill, as required by the tests referenced above.
 4. Where compaction tests do not meet the minimum standard density, corrective action shall be taken, such as adding water, aerating, replacing material and/or applying more compaction effort, as directed by the developer's engineer. Retests shall show passing densities prior to placing the next lift of material.
 5. For trenching in existing streets, see Section 8.03 (Underground Utility Installation).

9.06 Subgrade

In preparing the roadbed for surfacing, prior to any paving, the requirements outlined in Sections 2-06.3(1) and 2-06.3(2) of the WSDOT Standard Specifications shall be met. After the subgrade preparation has been completed, it shall be thoroughly checked by the developer/contractor using a level, string line, crown board, or other means to determine that the subgrade conforms to the approved street section cross-slope or special plan conditions, prior to placing any base or surfacing material.

9.07 Traffic Control in Development Construction

- A. Interim Traffic Control: The developer/contractor shall be responsible for interim traffic control during construction on or along traveled City streets. When street or drainage work is to be performed on City streets that are open to traffic, the developer/contractor will be required to submit a traffic control plan for approval by the City prior to beginning the work. For work to be performed on or adjacent to SR 516, the traffic control plan will require the additional approval by WSDOT.

Traffic control shall follow the guidelines of Section 1-07.23 of the WSDOT Standard Specifications. All barricades, signs and flagging shall conform to the requirements of the MUTCD Manual. Specific requirements for barricades are provided in Section 5.07 (Street Barricades) and the Standard Details. Signs must be legible and visible and should be removed at the end of each work day if not applicable after construction hours.

- B. Temporary Street Closures and Detours: When temporary street closures cannot be avoided, the developer/contractor shall post "To Be Closed" signs a minimum of five days prior to the closing. The types and locations of the signs shall be shown on an approved detour plan. A detour plan must be prepared and submitted to Permit Services at least 10 working days in advance, and approved prior to closing any City street. In addition, the developer/contractor must notify, in writing, local fire, school, law enforcement authorities, Metro transit, and any other affected persons as directed by the City Engineer at least five days prior to closing.
- C. Haul Routes: If the construction of a proposed development is determined by the City Engineer to require special routing of large trucks or heavy construction equipment to prevent impacts to surrounding streets, residences or businesses, the developer/contractor shall be required to develop and use an approved haul route.

When required, the haul route plan must be prepared and submitted to the City Engineer and approved prior to beginning or continuing construction. The haul route plan shall address routing, hours of operation, approximate number of daily trips and total trips, signage and flagging, and daily maintenance.

If the developer/contractor's traffic fails to use the designated haul route, the City Engineer may prohibit or limit further work on the development until such time as the requirements of the haul route are complied with.
- D. Haul Route Agreement: When identified as a need by the SEPA review process or by the City Engineer, a Haul Route Agreement shall be obtained by the franchised and non-franchised utility, developer or property owner establishing restoration procedures to be performed upon completion of the haul operation.

9.08 City Forces and City Contract Street Inspection

Street construction performed by City forces or by contract for the City will be inspected under the supervision of the City Engineer.

9.09 Call Before You Dig

Builders are responsible for timely notification of utilities in advance of any construction in right-of-way or utility easements. The utility One-Call Center phone number 1-800-424-5555 should be prominently displayed on the work site.

9.10 As-Built Documents

As-built plans are a final record of what was actually installed, and include all deviations or changes from the approved plans. During construction, the developer, general contractor, design engineer and/or surveyor should record any changes to an approved plans set to assist in preparation of the as-built documents. As-built plans shall exhibit the same degree of detail as the approved construction drawings.

- A. All relevant improvement sizes, diameters, elevations, depths, dimensions, and materials specified on the approved street and drainage plans must be checked by a surveyor in the field during and/or after construction.
- B. All substantive differences shall be added to a set of the approved street and drainage plans for review and approval by the City of Covington.
- C. The preferred format for as-built information is to draw a line through the design elevation, length, slope, etc., then add the as-built value in a bolder, larger or italicized font. The intent is to emphasize the as-built information while leaving the original design information for reference.
- D. Remove insignificant information, such as clouding, pre-developed contours where post-developed grades are shown, plan view hatching, etc. The intent is to show the as-built information clearly and concisely, without additional distracting information.
- E. All stormwater detention/retention volumes shall be surveyed, calculated and clearly noted as "Calculated As-Built Volumes" on the as-built drawings.
- F. The following statement shall be added to the as-built drawings, and stamped and signed by the design engineer or surveyor preparing the documents:

"I have reviewed the construction and to my knowledge find it to be in substantial conformance with the approved plans and specifications, except as noted."
- G. A spreadsheet shall be prepared providing the state plane coordinates and surface elevations (NAVD '88) for all drainage structures, sewer manholes, water valves, utility vaults, and survey monuments within the right-of-way and all dedicated drainage tracts.

One set of bond (paper) as-built plans, of the original size (typically 24"x36"), consisting of the cover sheet and those sheets with as-built information, shall be submitted to the City of Covington for review. Additional information or supporting documentation may be required by the City Engineer, prior to acceptance of the as-built documents and release of any applicable performance bonds.

The final submittal of the as-built documents shall include one complete set of the street and drainage plans on bond, and a compact disk containing the relevant AutoCAD files, PDF files of each as-built plan sheet and the spreadsheet of all structures and utilities. A mylar copy may be requested by the City Engineer.

CHAPTER 10 PLAN PREPARATION AND APPLICATION

10.01 Engineering Plan Preparation

All development proposals (Commercial or Subdivision) shall meet the following minimum engineering plan preparation standards:

- A. A professional Civil Engineer, licensed in the state of Washington, shall prepare, sign and stamp the engineering plans, in accordance with RCW 18.43.070, prior to submittal to the City of Covington.
- B. Plan sheets shall be 24" x 36" in size, dark line on light background.
- C. The cover sheet shall include:
 - 1. Project title.
 - 2. Vicinity map with north arrow.
 - 3. City of Covington file number.
 - 4. The section, township and range.
 - 5. Index of plan sheets.
 - 6. The applicant's and/or developer's name.
 - 7. The name, address, seal, date and signature of the responsible professional engineer.
- D. All subsequent sheets shall include:
 - 1. Project title.
 - 2. City of Covington file number.
 - 3. The section, township and range.
 - 4. The name, address, seal, date and signature of the responsible professional engineer.
- E. Plan Views shall include:
 - 1. A north arrow and an engineer's scale.
 - a. The north arrow shall be generally oriented to the top or to the right side of the sheet.
 - b. Typical scale for subdivisions: 1" = 50'.
 - c. Typical scale for commercial developments: 1" = 20', 1" = 30' or 1" = 50'.
 - 2. All found and reference survey monuments.
 - 3. The datum(s) or benchmark used to establish horizontal and vertical control.

4. Proposed road names, centerline bearings, and dimensions for right-of-way, street and easement widths.
 5. Stationing for street centerline, points of curvature, tangency, and intersections. Street alignments shall read from left to right, and stationing shall increase from west to east and south to north. Negative stationing will not be allowed.
 6. All elements of the proposed street section, including centerline, curb and gutter, planter strip, sidewalk, right-of-way, utility easements, medians, turn and/or bike lanes, etc.
 7. All existing and proposed utilities. Linework shall be faded into the background, but dark enough to be legible on copy.
 8. Section lines, project boundary lines, lot lines, etc.
 9. All topographic features within and adjacent to proposed improvements and within sufficient area to assess impacts of slopes, drainage, access, slopes, future extensions, etc.
 - a. Existing and proposed contours shall be shown at 1' intervals for grades less than 10%.
 - b. 2' intervals shall be shown for grades between 10% and 30%.
 - c. 5' intervals for grades greater than 30%.
 10. All existing and proposed drainage features and facilities, showing direction of flow, size and type of each drainage pipe, structure, channel, pond, etc.
 11. Curve data, including radius, arc length, delta and semi-tangent length for all street centerlines, curb returns and cul-de-sac bulbs.
 12. Identification of adjacent roads, neighborhoods, addresses or any other information to facilitate locations and future reference.
 13. Plan views should be oriented for the most efficient use of paper.
- F. A separate Plan and Profile sheet shall be prepared for each street alignment. Unless otherwise approved by the City Engineer, corresponding plan and profile views shall be presented on a single sheet, of matching street station segment, and oriented with aligning stationing, or best fit.

G. Profile Views shall include:

1. An engineer's scale. Horizontal scale shall match corresponding plan view (typical scale: 1" = 50'). Vertical scale should allow for adequate depiction of street, storm, sewer and water grades and structures, while minimizing profile breaks (typical scale: 1" = 10', minimum scale: 1" = 5", maximum scale: 1" = 20').
2. The datum or benchmark used to establish vertical control.
3. 1" grid lines with station labels at 100' intervals and elevation labels spanning the elevation range of the existing and proposed grades.
4. Existing and proposed centerline elevations at 50' stations, positioned along the bottom of the profile view.
5. Existing centerline profile based on topographic survey, accurate to within 0.1' on unpaved surfaces and 0.01' on paved surfaces.
6. Proposed design information, including grades, grade break stations and elevations, and vertical curve information, including length, stations and elevations for PVC, PVI and PVT, A.D. and K-values, and high or low point and elevation, if applicable.
7. Profiles for curbed streets shall show only the tops of both curbs, with breaks at all curb returns. Profiles for half-street improvements shall show the top of curb and the opposite edge of pavement. Profiles for fire access streets, private access streets, alleys and shouldered roads shall show the centerline only.
8. Profiles for street widening (where grind and overlay is not proposed) shall show the existing centerline, the existing street at the sawcut line and the proposed top of curb.

Street widening calculations shall be included with the submittal of the design plans. A sample street widening spreadsheet is provided in Section 10 of the Appendix. The calculations shall show:

- a. Widening cross-slope: 2% to 4%.
 - b. Change in cross-slope maximum: 1.0%.
 - c. Curb grade minimum: 0.5% (0.8% preferred).
9. Station and elevation labels shall be added to the proposed profile at the start and end of improvements, curb returns, cross-slope transitions, width tapers, and any other spot or segment not defined by the street section.
 10. Station and centerline labels shall be added to the profile at all intersections.

- H. Cul-De-Sac designs shall include:
1. An alignment of the face of curb, starting at the PC of the bulb (either side), continuing around the bulb and ending at the opposite PC.
 2. A profile of the existing ground and proposed face of curb, presented as outlined under Section 10.01 G.
 3. Reference points at both PC's and PCC's and quarter points around the bulb. Reference points shall be labeled on both the plan and profile views.
- I. Detail drawings shall include:
1. A north arrow and engineer's scale (typical scale: 1" = 20').
 2. A detail title, description or reference note.
 3. Adequate linework, dimensions, spot elevations, sections, views and notes to construct the street element, structure or facility. Irrelevant background information should be removed to avoid detail clutter.
 4. Intersection details shall note the station equation and the finished grade elevation at the point of intersection. Curb return information shall include corresponding street stations at all PC's and PT's and top of curb elevations at the ends and quarter points to verify drainage and to facilitate smooth transitions.
- J. Drafting Standards:
1. Fonts – Lettering shall be legible and easily understood by the reviewer. Lettering shall be of sufficient size and boldness to produce clear and readable text when scanned or copied, but small enough for efficient use of paper. A typical note font should be approximately 0.08" to 0.10" in height. Submitted plans not meeting these criteria will be returned to the design engineer for correction.
 2. Linetypes and Symbols – A list of standard drafting linetypes and symbols are shown in Standard Detail 1001 (Standard Linetypes and Symbols). All drawings submitted for review shall use these standards. Linetypes and symbols for plan features not provided in Standard Detail 1001 shall be described in a legend on each applicable plan sheet.
- Lineweights shall be of sufficient boldness to produce clear and legible linework when scanned or copied. Lineweights shall differ between linetype applications for drawing clarity and efficiency.

- K. The order of sheets in a set of engineering plans should follow the natural progression of construction of the development. The typical set of engineering drawings will include the following sheets:
1. Cover Sheet
 2. Notes
 3. Existing Conditions/Demolition Plan
 4. Erosion and Sediment Control Plan(s)
 5. Grading Plan(s)
 6. Composite Utility Plan
 7. Street and Drainage Plan(s)
 8. Details
 9. Channelization Plan
 10. Lighting Plan
 11. Landscape Plan
- L. City of Covington Standard Plans shall be referenced in the construction notes or added to the engineering plans as independent details. Changes to Standard Plans shall include removal of the City's title block and emphasis on the modification.
- M. City of Covington Standard Plan Notes must be included in all plan sets. The City of Covington Standard Plan Notes are provided in Section 10 of the Appendix.

At the applicant's discretion, notes which in no way apply to the project may be omitted; however, the remaining notes must not be renumbered. For example, if General Note #3 were omitted, the remaining notes should be numbered 1, 2, 4, 5, etc. If additional site specific notes are considered necessary, they shall be added to the end of the appropriate section.

N. Bond Quantity Worksheet

A Site Improvement Bond Quantity Worksheet (BQW) shall be completed for every development project to fulfill the requirements of Section 1.10 (Penalties and Financial Guarantees). The City of Covington standard BQW is provided in Section 10 of the Appendix.

O. Plan Expiration

Engineering plan approval will expire with the expiration of the Preliminary Plat approval for a subdivision or Commercial Site Development Permit.

1. Preliminary Plat approval for subdivisions shall be effective for a period of 60 months, in accordance with CMC 17.20.020.
2. Commercial Site Development Permits shall become null and void if the developer fails to file a complete building permit application for all buildings within three (3) years of the approval date, in accordance with CMC 18.110.080.

- P. Waiver of Plan Requirements: Subject to review, the City Engineer may waive plan requirements, wholly or in part, based on the following criteria:
1. No more than 2,000 square feet will be cleared and graded within the right-of-way or easement; and
 2. The existing grade or slope in the road right-of-way or easement does not exceed 8 percent; and
 3. The work will not intercept a stream, wetland, or sensitive area buffer, or otherwise impact sensitive areas and natural surface drainage; and
 4. Plans do not include a retention/detention facility; and
 5. The work is required of a short plat development, or a right-of-way use permit and involves less than 100 lineal feet of existing public street improvement; and
 6. City of Covington Standard Details, submitted with the required permits, are sufficient to describe the improvement to be constructed.

10.02 General Application Procedures

Submittal requirements and procedures shall be as prescribed in the following for subdivision applications and commercial site development applications. Application packages for Boundary Line Adjustments (BLA's), Commercial Site Developments, Short Plats and Subdivisions are available from the City of Covington's Permit Services.

- A. "Subdivision" is the division of property into five or more lots or the re-division of any property that has been divided under the Short Subdivision procedure into a total of five or more lots within five years.

Subdivision Application: The subdivision process has four steps: a Pre-Application meeting, Preliminary Plat approval, Engineering Phase Review and Acceptance and Final Plat Acceptance. The Hearing Examiner is responsible for Subdivision approval. The Development Review Engineer is responsible for Engineering Phase acceptance. The Director of Community Development is responsible for approval of the Final Plat.

1. **Pre-Application Meeting:** A Pre-Application meeting shall occur before a Site Development Application can be submitted. The intent of the pre-application meeting is to reach concurrence on the applicable design parameters, site payout and drainage concept. If deemed necessary, a joint site visit may be conducted by members of the Community Development Department, the applicant and the applicant's engineer. Pre-application packets are available from the Permit Services.
2. **Preliminary Plat:** After a successful pre-application meeting, Applicants are permitted to submit a formal Site Development Application. Within 28 days of receiving the application, department staff will determine if it is complete.

If the application is deemed complete, the City will notify the applicant in writing along with instructions for public noticing. If not, the applicant will be contacted by mail outlining what additional information is needed.

During the preliminary plat review process, staff may conduct an environmental analysis of the project if subject to the requirements of the State Environmental Policy Act (SEPA). The City has the option of using the Optional SEPA notification provisions, which allow for a single public comment period. This option may be used if the City can reasonably determine that the project is unlikely to have adverse environmental impacts.

To ensure that the public has an opportunity to review the proposal, public notice will be posted on the project site, published in the local newspaper and mailed to surrounding property owners. The three specific public notice requirements are provided in Section 10.02 C.

The project will not be scheduled for a public hearing before the Covington Hearing Examiner prior to resolution of any project issues.

At the completion of Preliminary Plat approval, a written notice of decision will be mailed to the applicant and all parties of record. The decision on Final Plat approval is final unless appealed to Superior Court.

Approval of the preliminary plat expires five years after the Hearing Examiner decision if an application for final plat is not made with the City.

3. Engineering Phase Review and Acceptance: The applicant will be required to have a pre-submittal meeting with the Development Review Engineer prior to formal submittal of Engineering Plans. The intent of the pre-submittal meeting is to verify that all the information necessary to evaluate the site design is provided in the civil design plans. The applicant will be given an opportunity to present the design and calculations and receive cursory comments from the Development Review Engineer prior to engineering plan submittal. Please contact and coordinate pre-submittal requirements and documents with the Development Review Engineer.

A licensed engineer or engineering firm shall be responsible for the supervision and inspection of all site improvements, unless found to be unacceptable to the City. All improvements shall be certified in writing by the engineer as completed in accordance with plans and specifications as approved by the City.

When the project receives Engineering plan acceptance, the applicant is responsible for improving the site with necessary improvements (streets, drainage and utilities) in accordance with the City standards, specifications, any conditions of the preliminary plat approval, and receiving City Council approval of the improvements within 5 years.

Prior to proceeding with any site improvements, the applicant shall obtain the necessary permits from the City. The applicant is also responsible for complying with all applicable permit requirements of other federal, state and local agencies. A Pre-construction meeting will be held with the applicant's team prior to issuing the Notice to Proceed to being construction.

If the applicant wishes to defer on-site improvements until after recording the final plat, written notice shall be made to the Department. The Applicant shall furnish a financial guarantee in an amount approved by the Director of Community Development for the deferred improvements. The financial guarantee may be in the form of an Assignment of Funds, irrevocable Letter of Credit, Cash Deposit, or a Surety Bond. This agreement shall also be recorded with the property title. Acceptance of a request for Deferred Improvements is subject to approval from the Director of Community Development.

4. Final Plat Review: The applicant can request Final Plat approval once the applicant receives preliminary plat approval, constructs the necessary site improvements (streets, drainage and utilities) in accordance with City standards, specifications, any conditions of the preliminary plat approval, or provides a financial guarantee for all unfinished improvements and receives City approval of the improvements or financial guarantee within 5 years.

- B. "Site Development" is a general term used to describe all non-single family residential development (i.e. development of commercial, office, multi-family or mixed-use).

Site Development Application: The Site Development process has four steps: Pre-Application meeting, Site Plan Review and Acceptance, Engineering Phase Review and Acceptance, and Structural Review and a Certificate of Occupancy. The Community Development Director is responsible for Site Plan acceptance. The Development Review Engineer is responsible for Engineering Phase acceptance. Structural Review and final issuance of the Certificate of Occupancy (C of O) are granted by the Building Official.

1. Pre-Application Meeting: A Pre-Application meeting shall occur before a Site Development Application can be submitted. The intent of the pre-application meeting is to reach concurrence on the applicable design parameters, site payout and drainage concept. If deemed necessary, a joint site visit may be conducted by members of the Community Development Department, the applicant and the applicant's engineer. Pre-application packets are available from the Permit Services.
2. Site Plan Review and Acceptance: After a successful pre-application meeting, Applicants are permitted to submit a formal Site Development Application. Within 28 days of receiving your application, the Department staff will determine if it is complete. If the application is deemed complete, the City will notify the applicant in writing along with instructions for public noticing. If not, the applicant will be contacted by mail outlining what additional information is needed.

During the Site review process, staff may conduct an environmental analysis of the project if subject to the requirements of the State Environmental Policy Act (SEPA). The City has the option of using the Optional SEPA notification provisions, which allow for a single public comment period. This option may be used if the City can reasonably determine that the project is unlikely to have adverse environmental impacts.

To ensure that the public has an opportunity to review the proposal, public notice will be posted on the project site, published in the local newspaper and mailed to surrounding property owners. The three specific public notice requirements are provided in Section 10.02 C.

Applications will also be open to architectural review and public comment during the Site Review process. All commercial and multi-family projects are subject to compliance with the Covington Design Manual. The manual promotes responsible site design, respectful architecture and community values. After Staff review, a report is prepared and forwarded to the Director with recommendations. The Director will take final action based on the information provided.

At the completion of Site Acceptance, a written notice of decision will be mailed to the applicant and all parties of record. The Director's decision is final unless an appeal is filed with the City Clerk within 14-days of the decision. All appeals will be heard before the Covington Hearing Examiner.

3. **Engineering Phase Review and Acceptance:** The applicant will be required to have a pre-submittal meeting with the Development Review Engineer prior to formal submittal of Engineering Plans. The intent of the pre-submittal meeting is to verify that all the information necessary to evaluate the site design is provided in the civil design plans. The applicant will be given an opportunity to present the design and calculations and receive cursory comments from the Development Review Engineer prior to engineering plan submittal. Please contact and coordinate pre-submittal requirements and documents with the Development Review Engineer.

A licensed engineer or engineering firm shall be responsible for the supervision and inspection of all site improvements, unless found to be unacceptable to the City. All improvements shall be certified in writing by the engineer as completed in accordance with plans and specifications as approved by the City. A Certificate of Occupancy will not be issued until all outstanding issues have been resolved.

When the project receives Engineering plan acceptance, the applicant is responsible for improving the site with necessary improvements (streets, drainage and utilities) in accordance with City standards, specifications, any conditions of the preliminary approval, and receiving City Council approval of the improvements within 3 years.

Prior to proceeding with any site improvements, the applicant shall obtain the necessary permits from the City. The applicant is also responsible for complying with all applicable permit requirements of other federal, state and local agencies. A Pre-construction meeting will be held with the applicant's team prior to issuing the Notice to Proceed to begin construction.

4. Structural Review and Certificate of Occupancy: The applicant shall contact the City of Covington's Building Department for Structural Review and Certificate of Occupancy requirements.
- C. The required three (3) methods of public notice for each project application are as follows:
1. Posting – A notice board shall be installed in accordance with the City's posting requirements. Additional signs may be required for larger sites or sites with multiple frontages. After installation, the applicant shall submit a completed affidavit of posting as part of an application submittal packet. The City will provide laminated copies of all required posting materials. Maintenance of the notice board is the responsibility of the applicant.
 2. Mailing – The Applicant must provide four sets of mailing labels for all property owners within 1000 feet of the subject property. Labels must be provided in three-column format.
 3. Publishing – The Permit Services department will publish the notice of application in a local newspaper with general circulation.