General Development Standards and Guidelines

CHAPTER 1
GENERAL DEVELOPMENT STANDARDS AND GUIDELINES

1.01 Authority

The City of Centralia Design and Development Guidelines, herein cited routinely as the "Guidelines", were adopted by the Centralia City Council in Ordinance No. 2386 on June 27, 2017 and amended by Resolution No. 2731on December 8, 2020 .

The City Engineer is authorized to amend or update the Guidelines in accordance with sound engineering practices. A copy of all amendments shall be issued to all guideline holders as they are made.

1.02 Standard Specifications

Except where the Guidelines specify otherwise, design detail, construction workmanship and materials shall be in accordance with the most current edition of the following publications.

1.02.1 American Association of State and Highway Officials (ASSHTO) "A Policy on Geometric Design of Highway and Streets".

1.02.2 Washington State Department of Transportation (WSDOT)/Washington State Chapter of the American Public Works Association (APWA) Standard Specifications for Road, Bridge and Municipal Construction. These will be referred to herein as the "WSDOT/APWA Standard Specifications".

1.02.3 WSDOT/APWA Standard Plans for Road, Bridge and Municipal Construction. These will be referred to herein as the "WSDOT/APWA Plans".

1.02.4 WSDOT Design Manual.

1.02.5 WSDOT Hydraulic Manual.

1.02.6 WSDOT Traffic Manual.

1.02.7 WSDOT Construction Manual.

1.02.8 City of Centralia Municipal Code, particularly Chapter 20, Zoning; Chapter 15, Water and Sewers, Chapter 19, Subdivision Code.

1.02.9 City of Centralia Comprehensive Plan.

1.02.10 City of Centralia Comprehensive Water System Plan.

1.02.11 City of Centralia Wastewater or General Sewer Plan.

1.02.12 Washington Department of Ecology "Criteria for Sewage Works Design".

1.02.13 Washington State rules and regulations regarding public water supplies.

1.02.14 City and County Design Standards for the Construction of Urban and Rural Arterial and Collector Roads promulgated by the City Engineers Association of Washington.

1.02.15 U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD), as amended and approved by Washington State Department of Transportation.

1.02.16 Design criteria of federal agencies, including Department of Housing and Urban Development and the Federal Housing Administration.

1.02.17 City of Centralia Parks and Recreation Master Plan.

1.02.18 The Uniform Plumbing Code

1.02.19 The Washington State Department of Ecology Stormwater Management Manual for Western Washington.

1.02.20 City of Centralia Comprehensive Surface/Stormwater Management Plan.

1.02.21 Other specifications not listed in this section may apply when required by the City of Centralia.

1.03 Applicability

These standards shall govern all new construction and upgrading of facilities both in the public right-of-way and on-site for transportation and transportation related facilities; storm drainage facilities; water and wastewater facilities; and park, recreation and open-space facilities.

1.04 Definitions

"Average Daily Traffic" or ADT: The average number of vehicles passing a specified point during a 24-hour period. Annual average daily traffic (AADT) denotes that daily traffic which is averaged over one calendar year.

"Building Sewer" or "Side Sewer": The portion of the sewer line beginning two (2) feet outside the outer foundation wall of the structure to the sanitary sewer main. Serves one residential structure or customer only. May serve two customers in the case of a duplex. Same as ″Lateral″.

"City Engineer": The City Engineer or their duly authorized representative.

"CMC": Centralia Municipal Code.

"Developer": Any person, firm, partnership, association, joint venture, or corporation or any other entity responsible for a given project.

"Development": The change/improvement of structure(s) and/or land as proposed and/or described in any application for development permit and/or plan approval submitted to the City of Centralia. For purposes of these Guidelines, development shall be defined to **not** include the following:

1. The construction, remodeling, and/or expansion of a single-family home or duplex.

2. Any conversion of a residence to commercial use where the building is less than 1000 square feet, except that building sewer, interceptor requirements are still in force if applicable.

3. Any remodeling of an existing building less than 1000 square feet.

4. Any remodeling of an existing building equal to or greater than 1000 square feet or other improvements to a developed lot where the value of such work is less than fifty (50) percent of the present value of the land and improvements on the parcel. The present value will be the value listed by the Lewis County Assessor's Office unless the applicant provides an appraisal by a licensed appraiser at their own expense.

Once this exemption is used, the current and all future improvements will be cumulatively compared to the value of the property when the exemption is first used.

EXAMPLE:
Present Value of Property: $500,000
50% Threshold: $250,000
Proposed Improvement Value: $150,000
Future improvements allowed before reaching 50% threshold: less than $100,000

5. Any addition to an existing building where such work involves less than 1000 square feet of floor area.

"Development Permit": Any land use permit which must be approved by the City of Centralia prior to the development of land. Development permits include but are not limited to, building permits, long plats, building site plans, short plats, Planned Unit Development (PUD) plans, conditional use permits, special use permits, shoreline management substantial development permits, boundary line adjustments, variances, binding site plans, short plat amendments and long plat amendments.

"Driveway": An access from a public right-of-way or private easement that serves only one lot for single-family residential, one development for multi-family, commercial, or industrial.

"Easement": The right to use a defined area of property for specific purpose(s) as set forth in the easement document, on a plat or short plat, or as required for the purposes set forth in the Guidelines. Must be recorded by the Lewis County Auditor after appropriate City review.

"Engineer": Any professional engineer currently licensed by the State of Washington.

"ERU": Equivalent Residential Unit. Used to calculate sanitary sewer consumption. One ERU equals 900 cubic feet of water consumed per month. In these Guidelines, ERU shall be as follows:

1. Single-family residence, including mobile/manufactured homes: one ERU per living unit.

2. Duplex (two-family residence): two ERUs.

3. Residential buildings containing more than two living units: 0.70 ERU per living unit.

4. Commercial, industrial or other customers not readily identified as "residential", including, but not limited to, hotels, motels, boarding or rooming houses, nursing homes, assisted living facility and transient (overnight) trailer parks: one ERU for each estimated 900 cubic feet of water to be consumed per month.

"ESU": Equivalent Service Unit. Configuration of development or impervious surfaces on a parcel, estimated to contribute an amount of runoff to the City's storm and surface water drainage system which is approximately equal to that created by the average single-family residential parcel. Once ESU is equal to three thousand square feet of impervious surface area.

"Frontage Improvements": All of the street pavement, curb, gutter, sidewalk, storm drainage, water and sewer utilities, power and communication cable, street trees, and street lighting, as required and specified by these Guidelines, which are located within a public right-of-way or private street abutting the property boundary of the development.

"Half-Street": Street constructed along an edge of development utilizing half the regular width of the right-of-way and permitted as an interim facility pending construction of the other half of the street by the adjacent owner. A minimum pavement width of 26 feet is required.

"Improvement": All phases of a task related to a ″project″ or ″work″ and synonymous thereto.

"Interceptor": A sewer that receives flow from a number of main or trunk sewers, force mains.

"Lateral": The section of the sanitary sewer line extending from the City's main to the building ("Building Sewer") that has no other common sewers discharging into it.

"Lot of Street Frontage": The distance between the two points where the lot lines intersect the boundary of public street right-of-way.

"Plans": The engineering drawings -- plans, profiles, cross-sections, elevations, details, and supplementary specifications -- signed by a licensed professional engineer and approved by the SPRC and/or City Engineer, which show the location, character, dimensions, and details of the work to be performed.

"Private Street": Private vehicular access provided for by an access tract, easement, or other legal means to serve private property; privately owned and maintained.

"Project": Includes all phases of the work to be performed; synonymous to "improvement", "work".

"Public Sewer": The portion of the sanitary sewer system located within public right-of-way or easements (excludes laterals) and which are owned, operated and maintained by the City of Centralia.

"Public Street": Publicly owned and maintained street.

"Right-of-way": Public land, property, or interest therein (e.g. an easement) acquired for or devoted to a public street, public access, or public use (utilities).

"Road": Used interchangeably with "Street".

"Sewer Main" or "Trunk": Sewer line that receives flow from one or more public sewer lines.

"Side Sewer": Same as "Lateral".

"Site Plan Review Committee": (SPRC) Committee comprised of City department representatives who meet with the developer to review plans as outlined in Chapter 20.84 of the Centralia Municipal Code.

"Street": Used interchangeably with "Road". A public right-of-way, usually containing improved facilities for transportation and utilities.

"Surveyor": Any professional land surveyor licensed by the State of Washington who represents the developer.

"Use of Pronoun": In this document, the singular shall include the plural, and the plural, the singular; any masculine pronoun shall include the feminine and vice versa; "person" includes person or persons, firm, co-partnership, corporation or association, or combination thereof.

"Utility": A company providing public service including, but not limited to, gas, oil, electric power, street lighting, telephone, water, sanitary sewer/wastewater treatment, storm drainage, solid waste, cable or optical communication, whether or not such company is privately owned or owned by a governmental entity.

"Work": All the necessary details associated with the enhancement or ″improvement″ or ″project″ and synonymous thereto.

1.05 Severability

If any part of these City of Centralia Design and Development Guidelines, as adopted by ordinance and amended shall be found invalid, all other parts shall remain in effect.

1.06 Design Standards

1.06.1 Detailed plans, prepared by a licensed professional engineer, must be submitted to the City for plan review and approval prior to the commencement of any construction. Each sheet of the plans must be dated,

signed and stamped by the engineer prior to submittal for plan review. Final plans shall be approved by the SPRC and/or City Engineer prior to the start of construction. The vertical datum used on the plans for all projects shall be the USGS 1988 Datum.

1.06.2 Materials proposed for use in construction of publicly-owned or publicly-maintained facilities must be in conformance to approved standards in place at the time of submittal.

1.06.3 One electronic copy and two folded copies of the plans are required to be submitted along with a completed Plan Review Application form. All drawings shall be on 24" x 36" or 11″ x 17″sheet size (see Section 1.07). Original drawings of the approved plan shall become the property of the City of Centralia.

1.06.4 Plan and profile drawings are required for all proposed transportation-related improvements, street illumination, traffic signalization, storm drainage facilities, and sewer and water improvements. For specific minimum requirements, see the Plan Checklist in this chapter. On occasion, the scope of the project (e.g. relocating one hydrant) may not require engineered plans and can instead be handled by a Right-of-Way Permit. This option will be decided during the Site Plan Review.

1.06.5 Specifications shall be required and submitted with the plans if General Notes do not adequately cover the project requirements.

1.07 Drafting Standards

1.07.1 All plans submitted for either design approval or permanent record will be free of photographs, stick-ons and shading. Hatching may be acceptable if the pattern is not excessively dense.

1.07.2 Design drawings will be submitted on clean legible blue or black line format.

1.07.3 As-built drawings will be submitted electronically in both PDF and AutoCAD format. One hard copy on static-free 4-mil mylar with permanent image shall be provided. Sheet sizes will be 11" x 17", preferred; 24" x 36" for engineering drawings; 18" x 24" for survey drawings. The Building Department will not issue the Certificate of Occupancy for commercial, industrial and multifamily developments until the as-built drawings have been submitted and approved by the City Engineer.

1.07.4 All notes on plans shall agree in form and content with bid specifications and tabulations.

1.07.5 No engineering plans will be accepted with architect's scale. All drawings will be either 1" = 5', 1" = 10', or 1" = 20' horizontal, with vertical not to exceed 1" = 10'.

1.07.6 Water distribution utility drawings may be accepted at 1"=50' or 1"=40' if they are legible and prior approval is obtained from the City Engineer.

1.07.7 Plans will show all existing and proposed monuments. All monumentation shall be described using current City of Centralia coordinates. Centerline of roadways, easements (with type and dimensions), and other pertinent data will be referenced to existing monuments.

1.07.8 No drawings will be accepted for review if they are not legible or complete.

1.07.9 All existing features (pipes, curbs, power poles, etc.) are to be produced with a small pen or half-tones. Proposed features will be distinguished by a larger or bolder line weight.

1.07.10 Different line types shall be used to distinguish different features. For example, centerline and right-of-way will have different line types.

1.07.11 Please note that the guidelines in 1.07 are not intended to be the only requirements for completed drawings, but are an outline of minimum requirements for submitting complete drawings for the City's review. Particular care should be exercised in the preparation of the plans to ensure plan completeness and clarity in order for the City to provide a timely review and response.

1.08 Plan Review Application

1.08.1 The developer shall submit an application for SPRC to begin the review process. This application can be obtained from the Community Development Department located on the second floor at 118 West Maple, Centralia, WA, at (360) 330-7662.

1.08.2 After obtaining preliminary approval from the SPRC, the developer shall prepare all necessary plans as outlined in these guidelines. No work shall take place until all plans have been approved by the SPRC and/or the City Engineer, and all appropriate City fees are paid.

PLAN CHECKLIST

DESIGN AND AS-BUILTS FOR WATER, SANITARY SEWER, STORM SEWER, STREET, LIGHTING, AND SIGNAL IMPROVEMENTS

- ☐ Vicinity map (showing project location)
- ☐ Legend (APWA Standard Symbols or approved alternatives)
- ☐ North arrow with current City of Centralia meridian
- ☐ Scale bar
- ☐ City of Centralia datum 1988: bench mark #, elevation and location
- ☐ Title block:
  - ☐ Title:
  - ☐ Date:
  - ☐ Design by:
  - ☐ Drawn by:
  - ☐ Checked by:
  - ☐ Signature approval block
  - ☐ Sheet number of total sheets (e.g. 3 of 5)
  - ☐ Revisions and revision dates
- ☐ Engineer's/Land Surveyor's stamp, signed and dated
- ☐ Plans submitted on 11" x 17", 18" x 24" or 24" x 36" sheet size
- ☐ Detail sheet(s), describing applicable work
- ☐ "Call Before You Dig" note
- ☐ General notes and construction notes
- ☐ Sheet index
- ☐ Cover sheet (can include vicinity map, legend, general notes, construction details)
  - ☐ Signature box on each sheet for the City Engineer to approve drawings for construction

REQUIRED ITEMS: PLAN PORTION

- ☐ Construction centerline stations with origin based on existing monumentation
- ☐ Rights-of-way dimensions and right-of-way lines labeled
- ☐ Match lines with station and "see page" notation
- ☐ Edge of pavement, width, and pavement type
- ☐ Roadway and restoration sections (if applicable)
- ☐ Existing utilities -- above and below ground
- ☐ Adjacent property lines and addresses
- ☐ Note when matching existing features and utilities
- ☐ Easements -- existing, proposed, type, and dimensioning (if applicable)
- ☐ Define survey baseline vs. construction baseline (if applicable)

- ☐ All proposed structures noted and stationed
- ☐ Flow direction arrows
- ☐ Street names with directional prefix or suffix
- ☐ Profile grades (decimal Foot/Foot (FT/FT))
- ☐ Existing ground (on construction baseline for street or over utility installation when roadway section not included)
- ☐ Scale -- horizontal and vertical
- ☐ Stationing
- ☐ Vertical elevation increments: 25' stations on vertical curves and 50' on all tangents
- ☐ Existing utilities crossings

SANITARY SEWER

Plan View:

- ☐ Station and offset shown at each proposed manhole
- ☐ Manholes numbered
- ☐ Manhole type designation
- ☐ Flow direction -- with arrow on pipe
- ☐ Depth at property line and station for side sewer
- ☐ Distance from water lines, if applicable
- ☐ Type of pipe
- ☐ Size of pipe
- ☐ Length of pipe between structures
- ☐ Service line locations and depth at property line, with distance from center of downhill manhole
- ☐ Wet well location
- ☐ Dry well location
- ☐ Service panel location
- ☐ Telemetry panel location
- ☐ Chain link fence location
- ☐ Type of conduit
- ☐ Size of conduit
- ☐ Type and size of wire

Profile View:

- ☐ Station shown and offset at each manhole
- ☐ Manholes numbered
- ☐ Invert elevation showing direction, in and out
- ☐ Rim elevation of each proposed manhole
- ☐ Grades shown (decimal FT/FT)
- ☐ Type of pipe
- ☐ Size of pipe

- ☐ Length of pipe from center of manhole to center of manhole, in Lineal Feet (L.F.)
- ☐ Existing utilities crossings
- ☐ Cut section of wet well
- ☐ Cut section of dry well
- ☐ Chain link fence
- ☐ Service panel
- ☐ Telemetry panel
- ☐ Type of conduit
- ☐ Size of conduit
- ☐ Type and size of conduit
- ☐ Lifting rails

WATER

Plan View:

- ☐ Existing utilities crossings
- ☐ Fixtures (need horizontal location and minimum cover)
- ☐ Fire hydrants
- ☐ Blow-off (at dead end of line)
- ☐ Vacuum and air release valves when required
- ☐ Tees, crosses, elbows, adapters, and valves, meter station and offset
- ☐ Size of water main; type and brand of fixtures
- ☐ Length of water main in L.F. between fixtures
- ☐ Distance from sanitary and/or storm sewer, if applicable

Profile View:

- ☐ Existing utility crossings
- ☐ Show fixtures with stations and elevations
- ☐ Show valves and stations and elevations
- ☐ Size and material of water main
- ☐ Length of water main in L.F.
  - ☐ Grades

STORM SEWER

Plan View:

- ☐ Station and offset at each proposed manhole/catch basin
- ☐ Manholes/catch basins numbered
- ☐ Manholes/catch basins type designation
- ☐ Manholes/catch basins rim elevation
- ☐ Flow direction, with arrow on pipe
- ☐ Type of pipe

- ☐ Size of pipe
- ☐ Length of pipe
- ☐ If applicable: outlet control detail with elevations, pond dimensions with elevation

Profile View:

- ☐ Station and offset at each manhole/catch basin
- ☐ Invert elevations on manholes/catch basins showing direction of flow
- ☐ Manhole/catch basin type designation
- ☐ Rim elevation, each
- ☐ Type of pipe
- ☐ Size of pipe
- ☐ Length of pipe in L.F., center structure to center structure
- ☐ Grades shown in decimal FT/FT
- ☐ Existing utility crossings

STREET

Plan View:

- ☐ Identify property lines and addresses
- ☐ Spot elevations on curb returns (gutter and top if not standard)
- ☐ PI, PC, PT stationing of horizontal curves
- ☐ Curve information: delta, radius, and length for all curves
- ☐ Horizontal angle points and curb return elevations
- ☐ Identify field design situations by notes
- ☐ Match existing features noted by station with elevation
- ☐ Typical roadway sections and pavement types
- ☐ Pavement markings noted by station and offset
- ☐ Sidewalks
- ☐ Driveway entrances
  - ☐ Station at center
  - ☐ Width, type (AC,PCC); note applicable City standard plan
- ☐ Curb access ramps -- or City standard plan
- ☐ Intersection detail if applicable
- ☐ Location of traffic control devices
- ☐ Location of street trees
- ☐ Location of right-of-way landscaping

Profile View:

- ☐ Vertical information PVC, PVI, PVT, AP
- ☐ Show grades in decimal FT/FT form with + and - slope
- ☐ Super elevated roadway segments
- ☐ Detail: length of transition in, length of full super, length of transition out

- ☐ Gutter profiles: not required for new standard street section construction. Required for retrofit and variable gutter

TRAFFIC SIGNALS

Signal Standard Detail Sheet:

- ☐ Cabinet wire terminations
- ☐ Loops
- ☐ Service panel
- ☐ Pedestrian push buttons
- ☐ Vehicle display
- ☐ Emergency vehicle preemption
- ☐ Interconnect
- ☐ Pedestrian displays
- ☐ Signal standard detail chart

Signal Drawing Sheet:

- ☐ Service cabinet breaker schedule
- ☐ Legend for signal equipment/notes
- ☐ Scale (1" = 10') and North arrow
- ☐ One-line diagram for street light circuit(s)
- ☐ Pole notes
- ☐ Construction notes
- ☐ Wiring schedule table
- ☐ Pedestrian head diagram
  - ☐ Head numbers
  - ☐ Type of pedestrian signal head
- ☐ Vehicle head diagram
  - ☐ Head numbers
  - ☐ Type of vehicle signal head
  - ☐ Lens configuration
  - ☐ Back plates
- ☐ Phase sequence diagram
- ☐ Loops
  - ☐ Size
  - ☐ Loop number
  - ☐ Loop location
- ☐ Traffic signal poles
  - ☐ Pole number
  - ☐ Mast arm(s)
  - ☐ Street lights
  - ☐ Vehicle heads with head number

- ☐ Pre-empt detector
- ☐ Pre-empt indicator
- ☐ Spare tenon locations (if applicable)
- ☐ Pedestrian heads with head number

☐ Street light poles (if applicable)
☐ Pedestrian head signal poles (if applicable)
☐ Junction boxes
☐ Conduit runs
☐ Electrical service cabinet
☐ Power source
☐ Controller cabinet
☐ Pavement markings

- ☐ Crosswalks
- ☐ Stop bars
- ☐ Arrows and Onlys

STREET LIGHTING

☐ J-boxes
☐ Conduit runs
☐ Street light pole and number
☐ Construction notes
☐ Service panels
☐ Power source
☐ Wire notes
☐ Wiring schedule table
☐ One-line diagram for street light circuit(s)
☐ Scale (1" = 20') and North arrow
☐ Legend for street light equipment/notes
☐ Street light schedule

- ☐ Street light number
- ☐ Circuit number
- ☐ Luminaire type/watts/distribution
- ☐ Mounting height
- ☐ Mast arm length
- ☐ Station and offset
- ☐ Sheet number
- ☐ Comments

1.09 Plan Review

All civil plans are to be submitted to the Engineering Department. Any necessary easements or dedications shall be submitted for review along with the plans.

The initial turn-around time for the first review of plans submitted is normally four weeks. The developer's engineer is then requested to submit the original drawings for approval or is notified of additional required revisions. Additional review time will be required if revisions are necessary.

If plans require a third submittal, additional fees will be levied as established in the City's fee schedule. "Third Submittal" shall mean the third and any subsequent submittal of construction drawings, specifications, drainage calculations, and/or other information that requires additional plan checking pertaining to the construction of the proposed project. Approved plans will be returned to the City Engineer only after the plan checking fees have been paid.

Plans that have been approved more than one year before construction begins (i.e., a pre-construction meeting scheduled and inspection fees paid) shall be subject to re-review based on the hourly rate as established for third submittal.

1.10 Construction Control

Work performed for the construction or improvement of City roads and utilities, whether by or for a private developer, by City forces, or by a City contractor, shall be done to the satisfaction of the City and in accordance with the approved plans. It is emphasized that **No work shall be started until such plans are approved**. Any revision to such plans shall be approved by the City before being implemented. Failure to receive the City's approval can result in removal or modification of construction at the contractor's or developer's expense to bring it into conformance with approved plans.

1.11 Inspection

All work performed within public right-of-way or easements, or as described in the Guidelines, whether by or for a private developer, by City forces, or by a City contractor, shall be done to the satisfaction of the City and in accordance with the WSDOT/APWA Standard Specifications, any approved plans and these Guidelines. Any revision to construction plans must be approved by the City before being implemented.

It is the responsibility of the developer, contractor, or their agents to notify the City in advance of the commencement of any authorized work. A pre-construction meeting and/or field review shall be required before the commencement of work. Inspection fees shall be paid prior to the pre-construction meeting. Any necessary easements or dedications are required to be legally formalized before plan approval. It is the responsibility of the

developer, contractor or their agents to have an approved set of plans and any necessary permits on the job site whenever work is being accomplished.

The City shall have authority to enforce these standards as well as other referenced or pertinent specifications. The City will appoint project engineers, assistants and inspectors as necessary to inspect the work and they will exercise such approved authority as the City may delegate.

All specific inspections, test measurements or actions required of all work and materials are set forth in their respective chapters herein. Tests shall be performed at the developer's or contractor's expense.

Failure to comply with the provisions of these standards may result in Stop Work Orders, removal of work accomplished, or other penalties.

A project is considered final when as-built drawings have been submitted to and approved by the City, and a letter of acceptance is issued by the City to the party responsible for the project. Bill of Sale transmittal of a public improvement, where applicable, will be required as part of the acceptance process. The as-builts shall be provided on a mylar and electronically in PDF and AutoCAD format.

No water meters shall be released for any lot or building served by a project until final acceptance has been granted and all fees for water, sewer, power, and right-of-way improvements have been paid.

1.12 Fees

Fees, charges or bonding requirements shall be as established by the City Council by the passage of a resolution adopting a fee, charge, and bonding requirement schedule except where specifically set forth in the CMC. The City Council shall further set the dollar penalty for failure to pay said fee or charge in a timely manner.

All plan check fees are due when plans are submitted for review.

All inspection fees are due at the time of the issuance of the Right-of-Way Permit.

1.13 Permits

Before any person, firm, or corporation shall commence or permit any other person, firm, or corporation to commence any work to grade, pave, level, alter, construct, repair, remove, excavate, or place any pavement, sidewalk, crosswalk, curb, driveway, drain, sewer, water, conduit, tank, vault, street banner, or any other structure, utility, or improvement located over, under, or upon any public right-of-way or easement in the City of Centralia, or place any structure, building, barricade, material, earth, gravel, rock, debris, or any other material

or thing tending to obstruct, damage, disturb, occupy, or interfere with the free use thereof or any improvement situated therein, or cause a dangerous condition, a Right-of-Way Permit shall be obtained from the Engineering Department. A separate permit must be obtained for each separate project.

Much of the work covered in the Guidelines will require multiple permit authority review and approvals. Several types of permits and approvals require prior approval from the authority before a building or other permit can be issued. Any questions regarding information about permits, approvals and agreements should be directed to the Community Development Department.

The following general categories describe some of the permits, approvals and agreements, along with the issuing permit/code authority identified in parentheses:

1.13.1 Environmental Review

Environmental Checklist (Community Development Department). An Environmental Checklist must be completed by the applicant, if the project is not categorically exempt from SEPA and submitted along with the plans, specifications, and other information when approval or permits are being requested for a project.

1.13.2 Construction Permits

Building Permit (Community Development Department). A Building Permit is required for most all construction work, including alteration, repairs, and demolition.

Right-of-Way Permit (Engineering Department). Required for any work within the right-of-way as defined earlier in this Chapter. Such work may include utility work, lane closures, driveways, curbs, sidewalks, and haul routes. Permission to temporarily close a street or portion thereof for construction activities or special events is obtained through the right-of-way permit. A permit requirement is the provision of a Certificate of Insurance naming the City as an additional insured with a minimum limit of one (1) million dollars per occurrence and two (2) million dollars aggregate. The application for this permit is available on the City of Centralia website: www.cityofcentralia.com.

1.13.3 Approvals and Other Permits

There are several other permits or approvals which may be applicable; referred to in the Guidelines: Site Plan Review, plat and short plat approvals, Certificate of Occupancy (Community Development Department).

In addition, there are other City approvals related to land use which may have to be obtained prior to the permits mentioned above: Rezone, Conditional Use, Planned

Unit Development, and Shoreline Substantial Development Permit (Community Development Department).

1.14 Bonding

Bonds or other allowable securities will be required by the City to guarantee the performance of or maintenance of required work. For improvements, where no building permit is issued, the type and amount of security shall be 150 percent of the cost of the improvements. Types of securities include, but are not limited to, a bond with a surety qualified to do a bonding business in this state, a cash deposit, an assigned savings account, or a set aside letter.

For new plats the bonding requirements shall be as outlined in Chapter 19.12.100(D).

1.15 Utility Locations

The contractor shall call the One Call Locate center prior to starting any construction. The contractor shall request that the entire width of the right-of-way be located for the total length of work.

The contractor/developer is responsible for utility locates in conjunction with their project until final City approval of the project is given.

A right-of-way permit is required of any utility, except City-owned facilities when any work is to be done within the right-of-way.

1.16 Easements

1.16.1 Where public utilities and/or their conveyance systems cross private lands, an easement must be granted to the City. If the property is platted the easement may be conveyed when the land division is finalized and recorded. All easements must be prepared by an attorney or a licensed land surveyor or engineering firm capable of performing such work.

1.16.2 Easement widths shall be centered on the utility and be 15 feet for a single utility and 20 feet for dual utilities, except easements for sanitary sewer. Easements for sanitary sewer shall be a minimum of 20 feet wide. Construction easements shall be 30 feet minimum in total width, including the permanent easement. When trench depths dictate or where pipe diameter or vault widths exceed 4 feet, a wider easement may be required by the City Engineer.

1.16.3 Easements must initially be submitted in draft, unsigned form for review and approval prior to plan approval. Signed copies are required prior to plan approval. Any change in design which places a public improvement outside of the easement may necessitate stopping of construction until plans and easements can be

resubmitted and approved. Plan review fee will be based on the rate as established for the third submittal fee. Easements will be filed by the City upon satisfactory completion of the work.

1.17 Latecomers (Reimbursement) Agreements

Any person who constructs a water, sewer, storm drainage or street light improvements at the direction of the City which is in excess of that which is required to meet minimum standards or which meets minimum standards and will benefit properties abutting the location of the improvement, may, with the approval of the City Engineer, enter into a contract with the City which will allow the developer to be reimbursed for that portion of the construction cost that benefits the adjoining properties and/or is in excess of the minimum standard. This contract is commonly termed a "Latecomers Agreement". The format for the Latecomers Agreement **must** be submitted for review and approval prior to site plan committee approval to be considered. Latecomers Agreements submitted after site plan committee approval **will not** be accepted. The actual Latecomer Agreement will be processed after the work has been completed and the actual costs are known.

The developer is responsible for initiating, executing, and after City approval, filing the Latecomers Agreement for recording. The agreement shall include a list of those properties which will benefit from the extension, a map outlining and designating these properties, legal descriptions as required by the City, and back-up data supporting the costs submitted. The City will collect the latecomers fee from persons wanting to connect to or utilize the improvement and will subsequently see that the developer receives the payment.

1.18 Utility Extension

Anyone wishing to extend or upgrade any City utility should contact the Public Works Department or Centralia City Light Department for an Extension/Connection Fee Estimate and any special extension requirements. Although electric utility extensions and improvements are not covered in the Guidelines, this is also applicable to extensions involving Centralia City Light.

Utility mains shall be extended to and through the extremes of the property being developed for loop closures and/or future development as determined by the City.

1.19 Annexation Requirement

Properties lying outside of the City limit boundaries must execute an annexation agreement before they will be served by the City's utilities systems. The annexation requirement will be applied to all extensions of service beyond City limits as well as to connection to utilities already existing in suburban areas. Specific annexation process information and forms are available from the Community Development Department.

1.20 Traffic Control

1.20.1 The developer/contractor shall be responsible for interim traffic control during construction on or along traveled roadways. Traffic control shall follow the guidelines of the WSDOT/APWA Standard Specifications. All barricades, signs, coning, and flagging shall conform to the requirements of the MUTCD. The Traffic Control Plan shall be submitted to and approved by the City Engineer prior to the start of construction.

City utilities constructed or improved within Lewis County right-of-way will follow all traffic control requirements as set forth by the Lewis County Public Works Department and MUTCD. Road closures are allowed only when no viable alternative exists. Closures may be permitted for a specified duration. All requests must be submitted a minimum of three weeks prior to any closure, to provide for adequate notice and official board action.

Signs must be legible and visible and shall be removed at the end of each work day if not applicable after construction hours.

All necessary and/or required traffic control devices shall be in place prior to the beginning of the project construction and on a daily basis during construction.

1.20.2 When road closures and detours cannot be avoided, the contractor will notify the Engineering Department in advance of the closure. The City will require a detour plan to be prepared, submitted and approved prior to closing any portion of a City roadway.

The contractor/developer is also responsible for notifying the agencies on the Road Closure List included in the Right of Way Permit, in advance of all road closures. All Agencies must also be notified when the road is reopened or detour deactivated.

1.20.3 A right-of-way permit will be required before work in the roadway can commence. The application for a right-of-way permit can be obtained from the City of Centralia website: www.cityofcentralia.com. Please review requirements noted earlier in this chapter; contact the City Engineer for specific permit information.

Signs must be legible and visible and shall be removed at the end of each work day if not applicable after construction hours.

All necessary and/or required traffic control devices shall be in place prior to the beginning of the project construction and on a daily basis during construction.

1.21 Call Before You Dig

All developers/contractors are responsible for timely notification of utilities in advance of any construction in right-of-way or utility easements. The utilities "One-Call" Underground Location Center phone number is 1-800-424-5555. A minimum of 48 hours advance notice is required.

1.22 Emergency Work Policy for Private Utilities

In the event of an emergency street or utility shut-down during non-working hours, the direct overtime costs of responding City personnel shall be billed to the responsible party. Centralia Utilities 24-hour emergency number is (360) 330-2747.

Lewis County Dispatch (360)740-1105 must also be notified immediately by the developer/contractor so that emergency responders can receive timely notification of changed road conditions.

1.23 Authorization and Release to Dump

If excavated material from the public right-of-way must be disposed of at a dump site the contractor shall use the Authorization and Release to Dump form located at the end of this Chapter. The complete form must be submitted to the City Engineer prior to any material being dumped at the site.

1.24 Work Hours for Construction

Construction on private or public property shall only occur on Monday through Friday from 7:00 a.m. to 7:00 p.m. Any construction outside these hours or on weekends, must be approved by the City Engineer. A written request for approval must be submitted to the City Engineer two weeks prior to the date the work outside the approved work hours will occur.

AUTHORIZATION AND RELEASE TO DUMP

Project: _____

THE UNDERSIGNED, being the owner, or owner's agent, of the real property situated at _____ hereby authorizes and directs _____ (Contractor) to dump and deposit the following on owner's property:

INITIALS	DESCRIPTION
	Fill dirt with rock
	Fill dirt with rock and excavation debris
	Stumps and tree debris
	Rock of any type
	Broken concrete
	Construction debris (GWB, lumber, etc.)

The undersigned has initialed the approved materials and hereby releases and fully discharges the City of Centralia / _____ (contractor), from any and all claims, demands, actions, causes of action, known or unknown, including, but specifically not limited to, trespass and property damage, which arise out of the dumping or fill activities. Any permits shall be obtained by property owner or owner's agent at owner's expense.

THIS IS A FULL RELEASE - READ BEFORE SIGNING

I represent and warrant to _____ (Contractor), under penalty of perjury, that I am the owner or owner's lawful agent and may authorize said dumping and enter into this release without further approval of any other party.

Signed:_____ Date:_____

Mailing Address:_____

Phone:_____

RETURN TO: PROJECT ENGINEER _____

Please Print Name

CHAPTER 2
WATER

2.01 General

Any extension of the City of Centralia Water System must be approved by the City of Centralia Public Works Department. All extensions must meet or exceed the requirements of the Washington State Department of Health, the adopted City of Centralia Water Comprehensive Plan and the Riverside Fire Authority.

It is the developer's responsibility, as part of designing and planning for any development, to ensure that adequate water for both domestic use and fire protection will be provided. The developer must show, on the proposed plans, how water will be supplied and whether adequate water volumes at acceptable pressure and velocity will be attained in case of fire. An engineering analysis will be required if it appears that the system might be inadequate.

Anyone who wishes to connect to the City's water system should contact the Public Works Department for a water connection fee estimate. The estimate will show the approximate cost that will be due to the City for a water line connection.

Before any water meters will be put into service, all public works improvements must be completed and approved, including the granting of right-of-way or easements, as-built drawings submitted and accepted, and all applicable fees must be paid.

Issuance of building permits for new construction of single-family subdivisions shall not occur until final City of Centralia Public Works Department approval is given. For commercial projects, building permits may be issued upon completion and acceptance of the required fire protection facilities. A construction bond, in accordance with Section 1.14 of the Guidelines, will be required for the remaining public works improvements. Certificate of Occupancy will not be issued until final City of Centralia Public Works Department approval is given for all improvements.

2.02 Design Standards

The design of any water extension/connection shall conform to City standards and any applicable standards as set forth herein and in Sections 1.02 and 1.06.

The layout of extensions shall provide for the future continuation and/or "looping" of the existing system as determined by the City. In addition, main extensions shall be extended as required in Section 1.18.

The "General Notes" found in the Standard Detail Section shall be included on any plans dealing with water system design.

2.03 Main Line

2.03.1 Water mains shall be sized to provide adequate domestic plus fire flow at the required residual pressure. Fire flow requirements will be determined by the Riverside Fire Authority. However, the quantity of water required will in no case be less than 750 GPM at 20 psi residual pressure.

The minimum water main size where a fire hydrant is required shall be 6 inches in diameter where looped and 8 inches in diameter to the last fire hydrant where not looped, as long as fire flow and domestic requirements can be met. Larger size mains are required in specific areas outlined in the Centralia Water Comprehensive Plan. Nothing shall preclude the City from requiring the installation of a larger sized main in areas not addressed in the Water Comprehensive Plan if the City determines a larger size is needed to meet fire protection and domestic requirements or for future service.

All water mains 6 inches in diameter and larger which may be extended or looped, will end with an approved gate valve and blind flange, so as to not interrupt service when further extension work takes place.

2.03.2 All pipe for water mains shall have push-on type flexible gasketed joints and shall comply with one of the following types:

Ductile Iron Pipe: Shall conform to AWWA C151 Class 52 and have a cement mortar lining conforming to AWWA C104. All pipes shall be joined using non-restrained joints which shall be rubber gaskets, push-on type, conforming to AWWA C111. Ductile iron pipe is required for all new water mains 12 inches in diameter and larger, and for all fire hydrant laterals.

PVC Pipe: Sizes from 4 to 10 inches in diameter shall meet AWWA C900 standards. No solvent weld joint pipe will be allowed in the City system.

2.03.3 All fittings for ductile iron pipe or PVC pipe shall be ductile iron compact fittings conforming to AWWA C153 or AWWA C110 and C111. All shall be cement mortar lined conforming to AWWA C104. All fittings shall be connected by flanges or mechanical joints. Where required, mega-lug retainer glands shall be used. In special cases on steep slopes pipe restraints may be required as directed by the City Engineer. If required the pipe restraint system will be a 600 series as manufactured by Romal Industries, Inc.

2.03.4 All ductile iron pipe shall have brass wedges inserted at all joints for continuity to allow surface tracing by pipe locator.

All PVC pipe shall have a toning (tracer) wire installed with it. The wire shall be 12 gauge coated copper wire and shall be taped to the top of the pipe to prevent movement during backfilling. It shall be laid loosely enough to prevent stretching and damage, and shall be brought up and tied off at the valve body or meter setting.

2.03.5 The minimum cover for all water mains from top of pipe to finish grade shall be 30 inches or as approved.

2.04 Connection to Existing Water Main

The developer's engineer shall be responsible for determining the scope of work for connection to existing water mains. A minimum of ten working days' notice is required to schedule taps, or cut-ins. A right-of-way permit is required prior to connection to an existing main.

It is the contractor's responsibility to field verify the location and depth of the existing mains and the fittings required to make the connections to the existing mains.

2.05 Service Interruption

The contractor shall give the City a minimum of ten working days' notice of any planned connection to an existing pipeline. This includes all cut-ins and live taps. Notice is required so that any disruptions to existing services can be scheduled. The City will notify customers involved or affected 24 hours in advance of the water service interruption. The contractor shall make every effort to schedule water main construction with a minimum interruption of water service. In all situations, the City shall dictate scheduling of water main shutdowns so as not to impose unnecessary shutdowns during specific periods to existing customers.

The contractor is responsible for providing the necessary excavation and shoring to provide access to the existing water main for the City to make the tap. The excavating and shoring shall conform to L & I standards for worker safety. In the event the contractor does not have shoring conforming to L & I standards, the City will shut the job down until such shoring is in place.

2.06 Hydrants

2.06.1 The lead from the service main to the fire hydrant shall be ductile iron cement mortar lined Class 52, no less than 6 inches in diameter and a maximum of 50 feet in length. Greater than 50-foot lengths will require oversizing, as designed by an engineer.

2.06.2 Fire hydrants shall have two, 2.5-inch outlets and one 4.5-inch pumper port outlet. Threads shall be #498. The valve opening shall be 5.25-inch diameter. The hydrant shall have a positive and automatic barrel drain and shall be of the "safety" or breakaway style. A Storz coupler shall be provided for the pumper port.

Hydrants shall be Dresser M & H Reliant Style 929 or Mueller Centurion. All hydrants shall be bagged until the system is approved.

2.06.3 The Public Works Department and Riverside Fire Authority work together to insure that adequate hydrant spacing and installation are achieved.

Unless otherwise required by the governing authority, the following guidelines shall apply for hydrant number and location:

1. At least one hydrant shall be installed at all intersections.
2. Hydrant spacing of 250 feet shall be required in all areas except single-family and duplex residential areas.
3. Hydrant spacing shall be as required by the International Fire Code.
4. When any portion of a proposed building is in excess of 150 feet from a water supply on a public street, on-site hydrants shall be required. Such hydrants shall be located per the Riverside Fire Authority and easements for such hydrants shall be granted to the City.

2.06.4 Fire hydrants shall be set as shown in standard detail number 2-12.

2.06.5 Requirements regarding use, size and location of a fire department connection (FDC) and/or post indicator valve will be determined by the Riverside Fire Authority. Location of FDC's shall be shown on water plans.

2.06.6 Fire hydrants must be installed, tested and accepted prior to the issuance of a building permit.

2.07 Valves

All valves and fittings shall be ductile iron with ANSI flanges or mechanical joint ends; All existing valves shall be operated by City employees only.

Valves shall be installed in the distribution system at sufficient intervals to facilitate system repair and maintenance, but in all cases there shall be at least one valve every 600 feet. Generally, there shall be two valves on each tee and three valves on each cross. Specific requirements for valve spacing will be made at the plan review stage.

2.07.1 System Gate Valves, 4 to 12 inches: The design, materials and workmanship of all gate valves shall conform to AWWA C515, latest revision. Gate valves shall be resilient wedge non-rising stem (NRS) with two internal O-ring stem seals. Gate valves shall be Mueller, M & H, Waterous, Kennedy, or American AVK.

Gate valves shall be used on all 2 to 10 inches in diameter lines.

2.07.2 Butterfly Valves: Shall conform to AWWA C504, Class 250, with ductile iron short body and O-ring stem seals. Butterfly valves shall be Mueller, Dresser, Pratt, or American Darling.

2.07.3 Valve Box: All valves shall have a standard R 910 ductile iron water valve box set to grade, with a 6-inch ASTM 3034 SDR 35 PVC riser from valve to within 4 to 6 inches of valve box. If valves are not set in paved area, a 3-foot by 3-foot by 4-inch concrete pad shall be set around each valve box at finished grade. In areas where valve box falls in road shoulder, the ditch and shoulder shall be graded before placing asphalt or concrete pad. Valve box lids shall be ductile iron and marked "water". See standard drawing 2-09.

2.07.4 Tapping Valves: All tapping valves shall be resilient seal, full open models manufactured by Mueller, Kennedy, or Clowe.

2.08 Casing

Steel casing pipe shall be schedule 20 steel or equal. Casing pipe and spacers shall be sized for pipe being installed. The casing pipe shall be sand-packed after the water pipe is installed.

2.09 Air and Vacuum Release Valve

Air and vacuum release valves (ARV) shall be APCO 147C or Clay valve combination air release valve. Installation shall be as shown on standard drawing 2-13.

The installation shall be set at the high point of the line when required. Where possible, pipes are to be graded to prevent the need for an ARV. ARV's may not be required when services are in the vicinity.

2.10 Blowoff Assembly

If a fire hydrant is not located at the end of a dead end main, a blowoff assembly is required. On water mains which will be extended in the future, the valve which operates the blowoff assembly shall be the same size as the main and provided with a concrete thrust block. The pressure rating for blowoff assemblies shall be 200 psi. Adequate drainage must be available for use of the assembly under operating conditions. Installation is to be as shown on standard drawing 2-08.

2.11 Backflow Prevention

All water system connections to serve buildings or properties with domestic potable water which have a private well, fire sprinkler or fire service system, or irrigation system on site shall comply with the minimum backflow prevention requirements as established by the Washington State Department of Health (DOH) and City of Centralia, Centralia Municipal Code (CMC). Other potentially hazardous situations not listed here but covered in these regulations must also comply.

The installation of required backflow assemblies and/or air gaps is vital to protect the existing water system and users from possible contamination. All backflow prevention assemblies shall be of a type and model approved by DOH and/or the City and shall be installed as required.

The City shall have the authority to perform inspections on all backflow prevention assemblies connected to the City's water system and shall be provided access to the premises to inspect.

The owner of the property is required to submit the results of the initial and annual thereafter tests/inspections of all assemblies, made by a state-certified Backflow Assembly Tester, promptly to the Water Utility. All assemblies not passing a test must be repaired immediately. Water service may be disconnected for failed tests, failure to test as required, improper installation or by-passing an assembly or air gap.

The Water Utility (Centralia Public Works) shall receive the certificate for testing of all backflow prevention assemblies before the certificate of occupancy is released on any building. A list of approved testers may be obtained from DOH or the City.

Riverside Fire Authority will test the fire line and obtain the certificate for underground piping. The Riverside Fire Authority will under no circumstances test their portion of underground until the Centralia Public Works has observed test and approved their main up to the fire line.

2.12 Service Connection

2.12.1 All service connections relating to new development shall be of the appropriate size and installed by the developer at the time of main line construction. After the lines have been constructed, tested and approved, the owner may apply for a water meter. The City will install a water meter after the application has been made and all applicable fees have been paid. Water meters will only be set after the entire system is inspected and approved.

2.12.2 When water is desired to a parcel fronting an existing main but not served by an existing service, an application must be made to the City. Upon approval of the application and payment of all applicable fees, the City will tap the main, and install the meter and box.

2.12.3 Service lines shall be domestic, type K soft copper tubing, minimum pressure class 200 psi, grade SIDR 9 copper tube size. HDPE Class 200 psi CTS (¾-inch and 1-inch services only) may be used. Services larger than 1-inch diameter may be Schedule 40 PVC. Service lines shall be installed a minimum of 45 degrees off the main. Tracer wire (12-gauge coated wire) shall be installed on HDPE and PVC service lines as described in Section 2.03.4.

Service saddle shall be ductile iron with double stainless steel straps. All clamps shall have a rubber gasket.

Corporation stops shall be all U.S. brass and shall be Ford or Mueller with cc threads conforming to AWWA C800 unless using a service saddle. If using a service saddle, threads will be I.P.T. Stainless steel inserts shall be used with compression grip nut.

2.12.4 Single water meters will not be allowed for service to more than one building. An approved backflow prevention system must be installed in conjunction with any master meter. Any deviations from this must be granted by the City Engineer and Centralia Public Works Director.

2.12.5 Services larger than 2-inch shall contact the Centralia Water Department to determine the appropriate vault size for the meter.

2.12.6 All facilities listed on the Department of Health Cross Connection Control Table 9 are required to have backflow prevention devices on the service line.

2.13 Required Separation Between Water Lines and Sanitary Sewers

The basic separation requirements apply to all gravity and pressure sewers of 24-inch diameter or less; larger sewers may create special hazards because of flow volumes and joint types and accordingly require additional separation requirements. The special construction requirements given are for the normal conditions found with sewage and water systems. More stringent requirements may also be necessary in areas of high groundwater, unstable soil conditions, and so on. Any site conditions not conforming to conditions described in this section will require assessment and approval of the appropriate state and local agencies.

2.13.1 Horizontal and Vertical Separation (Parallel): A minimum horizontal separation of 10 feet between sanitary sewers and any existing potable water line and a minimum vertical separation of 18 inches between the bottom of the water line and the crown of the sewer shall be maintained. The distance shall be measured edge to edge.
See Figure 2-1 of Standard Plan 2-19.

2.13.2 Unusual Conditions (Parallel): When local conditions prevent the separations described above, a sewer may be laid closer than 10 feet horizontally or 18 inches vertically to a water line upon approval by the City Engineer provided:

1. It is laid in a separate trench from the water line.
2. The elevation of the crown of the sewer line must be at least 18 inches below the bottom of the water line. When this vertical separation cannot be obtained, the sewer shall be constructed of materials and joints that are equivalent to water main standards of construction and shall be pressure tested to ensure water tightness prior to backfilling. Adequate restraint should be provided to allow testing to occur.
3. Additional mitigation efforts, such as impermeable barriers, may be required.
4. The sanitary sewer may not be placed closer than 5 feet from a water line.
   See Figure 2-2 of Standard Plan 2-19.

2.13.3 Vertical Separation (Perpendicular):

The contractor shall maintain a minimum of 18 inches of vertical separation between sanitary sewers and water mains. If minimum vertical separation is not met, then standards for water-sewer separation in Department of Ecology's Criteria for Sewage Works Design shall apply.

The longest standard length of water pipe shall be installed so that the joints will fall equidistant from any sewer crossing. In some cases where minimum separation cannot be maintained, it will be necessary to encase the sewer line in ductile iron pipe. See water main general notes Number 14.

2.14 Irrigation

All irrigation systems shall be installed with an approved backflow prevention assembly approved by DOH and/or City of Centralia.

Irrigation sprinklers shall be installed so as not to wet any public street or sidewalk.

2.15 Staking

All surveying and staking shall be done by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington. Staking shall be maintained throughout construction.

A pre-construction meeting shall be held with the City Engineer before staking has ~~is~~ begun. All construction staking shall be inspected by the City Engineer prior to construction.

The minimum staking of water lines shall be as follows:

2.15.1 The centerline alignment shall be staked every 25 feet (50 feet in tangent sections) with cuts and/or fills to bottom of trench, maintaining 36 inches of cover over pipe. Centerline cuts are not required when road grade is to finished subgrade elevation.

2.15.2 The location of all fire hydrants, hydrant flanges elevations, tees, water meters, and other fixtures shall be staked within the cut or fill to finished grade.

2.16 Trench Excavation

2.16.1 Clearing and grubbing where required shall be performed within the easement or public right-of-way as permitted by the City and/or governing agencies. Debris resulting from the clearing and grubbing shall be disposed of by the owner or contractor in accordance with the terms of all applicable permits and/or regulations.

2.16.2 Trenches shall be excavated to the line and depth designated by the City to provide a minimum of 30 inches of cover over the pipe. Except for unusual circumstances where approved by the City, the trench sides shall be excavated vertically and the trench width shall be excavated only to such widths as are necessary for adequate working space as allowed by the governing agency. The trench shall be kept free of water until joining is complete. Surface water shall be diverted so as to not enter the trench. The developer/contractor shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out.

2.16.3 The contractor shall perform all excavation of every description and whatever substance encountered and boulders, rocks, roots, and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth 6 inches below water main grade. Where materials are removed from below water main grade, the trench shall be backfilled to grade with material satisfactory to the City and thoroughly compacted.

2.16.4 Trenching and shoring operations shall not proceed more than 100 feet in advance of pipe laying without approval of the City, and shall be in conformance with Washington Industrial Safety and Health Administration (WISHA) and Occupational Safety and Health Administration (OSHA) safety standards.

2.16.5 The bottom of the trench shall be finished to grade with hand tools in such a manner that the pipe will have bearing along the entire length of the barrel. The bell holes shall be excavated with hand tools to sufficient size to make up the joint.

2.16.6 The contractor shall maintain the presence of a "competent person", as defined by the Washington State Department of Labor and Industries, when any trench excavation and backfill work is being done at the project site.

2.17 Thrust Blocking

Location of thrust blocking shall be shown on plans. Thrust block concrete shall be Class B poured against undisturbed earth. A plastic barrier shall be placed between all thrust blocks and fittings. See standard drawings number 2-10 and 2-18 for thrust block locations and calculations.

2.18 Backfilling

Backfilling shall not commence until the pipe installation has been inspected and approved.

Backfilling and surface restoration shall closely follow installation of pipe so that not more than 100 feet is left exposed during construction hours without approval of the City. Selected backfill material shall be placed and compacted around and under the water mains by hand tools to a height of 6 inches above the top of the water main. The remaining backfill shall be compacted to 95 percent of the maximum density in traveled areas, 90 percent outside traveled areas. Where governmental agencies other than the City have jurisdiction over roadways, the backfill and compaction shall be done to the satisfaction of the agency having jurisdiction. If suitable backfill material, as determined by the City, is not available from trenching operations, the City may order the placing of bedding conforming to WSDOT/APWA Standard Specifications Section 9-03.15 around the water main and gravel base conforming to Section 9-03.10, same document, for backfilling the trench. At the conclusion of each day the trench shall be totally backfilled or steel plates shall be used so that no open excavation is left overnight.

2.19 Street Patching and Restoration

See Sections 4.15 and 4.16 for requirements regarding street patching and trench restoration.

2.20 Hydrostatic Tests

Prior to the acceptance of the work, the contractor shall conduct a hydrostatic test on the installation in accordance with Section 7-09.3(23) of the current version of the Washington State Department of Transportation Standard Specifications. Any leaks or imperfections developing under said pressure shall be remedied by the contractor. The main shall be tested between valves. Insofar as possible, no hydrostatic pressure shall be placed against the opposite side of the valve being tested. Test pressure shall be maintained while the entire installation is inspected by the City.

The contractor shall provide all necessary equipment and shall perform all work connected with the tests. Tests shall be made after all connections have been made and the roadway section is constructed to subgrade. This is to include any and all connections as shown on the plan. The contractor shall perform the test to assure that the equipment to be used for the test is adequate and in good operating condition and that the air in the line has been released before requesting the City to witness the test. Only authorized personnel shall operate isolation valves.

See Section 2.11 for testing responsibilities for backflow prevention devices.

2.21 Sterilization and Flushing

Sterilization of water mains shall be accomplished by the contractor in accordance with the requirements of DOH and AWWA standards and in a manner satisfactory to the City. At no time shall chlorinated water from a new main be flushed into a body of fresh water. This is to include lakes, rivers, streams, drainage ways, and any and all other waters where fish or other natural water life can be expected.

When proper chlorine concentration has been established throughout the line, the valves shall be closed and the line left undisturbed for 24 hours. The line shall then be thoroughly flushed. Water samples will then be taken by the contractor in the presence of the City's Inspector, at least 24 hours after the flushing. Should the initial treatment result in an unsatisfactory bacteriological test, and/or the water in the new line(s) fail to hold a chlorine residual, the chlorination procedure shall be repeated by the contractor until satisfactory results are obtained. Samples can only be taken on Mondays, Tuesdays, and Wednesdays until noon, due to lab scheduling constraints. Testing and sampling shall take place after all underground utilities are installed and compaction of the backfill within the roadway section is complete. The developer/contractor is responsible for the cost of all testing.

2.22 Pump Station

When a pump station is required to provide the necessary flows for a new development, the developer shall construct and be responsible for all cost of the pump station. The new pump station shall be designed by a licensed engineer to City of Centralia standards. The standards will be provided to the developer at the time of design. A pump station will only be allowed when there is no gravity alternative. The City will make the final determination on whether a pump station will be allowed.

2.23 Electrical

All electrical and housing for electrical equipment used for storage and/or distribution shall be designed to Centralia Public Works Development Standards at the time of development. The standards will be provided by the City.

LIST OF DRAWINGS

CHAPTER 2: WATER

CHAPTER 3
SANITARY SEWER

3.01 General

Sanitary sewer refers to wastewater derived from domestic, commercial and industrial pretreated waste to which storm, surface, and ground water are not intentionally admitted. Pretreatment of industrial and commercial wastes shall follow all the requirements as set forth by the Washington State Department of Ecology (Ecology), as administered by the Wastewater Department (Centralia Public Works). These requirements are hereby included by reference. See the Centralia Municipal Code (CMC).

Any extension of City of Centralia's sanitary sewer system must be approved by the City of Centralia and must conform to the City of Centralia's Facilities Plan and General Sewer Plan, Washington State Department of Ecology (Ecology) and Washington State Department of Health (DOH) requirements.

Within the corporate City limits where a public sewer is within 200 feet, it must be used (CMC). In the endangered aquifer areas on Waunch and Fords Prairies, this requirement has also been legislated by the Lewis County Board of Health.

All vehicle and equipment wash facilities shall be zero discharge closed loop water recycling. The City will not allow discharge into the municipal sewer system.

Anyone who wishes to extend or connect to the City's sewer system should contact the Public Works Department for a Water/Wastewater Connection Application form.

Prior to the release of any water meters all Public Works improvements must be completed and approved, all easements shall be recorded, all bonds received, and all applicable fees must be paid.

See Section 1.04 for definitions of specific sewers. Maintenance of the sanitary sewer lateral shall be the responsibility of the property owner.

3.02 Required Separation Between Water and Sanitary Sewer Mains

See Section 2.13 for requirements regarding sewer and water separation.

3.03 Staking

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington.

A pre-construction meeting shall be held with the City Engineer or their representative before staking begins. All construction staking shall be inspected by the City Engineer or their representative prior to construction. Staking shall be maintained throughout construction.

The minimum staking of sewer lines shall be as follows:

3.03.1 Centerline alignment must be staked with cuts and/or fills to flowline every 25 feet.

3.03.2 Manholes must be staked with hubs to include invert elevations of all pipes and top of rim elevations to finished grade.

3.04 Trench Excavation

3.04.1 Clearing and grubbing where required shall be performed within the easement or public right-of-way as permitted by the City and/or governing agencies. Debris resulting from the clearing and grubbing shall be disposed of by the owner or contractor in accordance with the terms of all applicable permits and/or regulations.

3.04.2 Trenches shall be excavated to the line and grade on the plan approved by the City. The minimum depth of cover measured from finished surface grade to the top of the pipe shall be 36 inches. Except for unusual circumstances where approved by the City, the trench sides shall be excavated vertically and trench width shall be no wider than the pipe outside diameter plus 24 inches. The trench shall be kept free of water. Surface water shall be diverted so as to not enter the trench. The developer/contractor shall maintain sufficient dewatering equipment on the job site to insure that these provisions are met.

3.04.3 The contractor shall perform all excavation so that all boulders, rocks, roots and other obstructions shall be entirely removed or cut out of the width of the trench and to a depth of 6 inches below the sewer main grade. The base of the trench must be solid so in some cases the contractor may have to over excavate to obtain a satisfactory base.

3.04.4 Trenching and shoring shall not proceed more than 40 feet in advance of the pipe laying, without approval of the City, and shall be in conformance with Washington Industrial Safety and Health Administration (WISHA) and Occupational Safety and Health Administration (OSHA) safety standards.

3.04.5 The bottom of the trench shall be finished to grade in such a manner that the pipe will have bearing along the entire length of the barrel.

3.04.6 The contractor shall maintain the presence of a "competent person" as defined by the

Washington State Department of Labor and Industries (L&I), when any trench excavation and backfill work is being done at the project site.

3.05 Backfilling

3.05.1 Backfilling shall not commence until the pipe installation has been inspected and approved by the City Inspector.

3.05.2 Backfilling shall closely follow pipe installation so that no more than 40 feet is left open without approval of the City.

3.05.3 The backfill in the pipe zone shall be bedding material conforming to City of Centralia Standard Details for trench restoration.

3.05.4 If foundation material is required below the pipe zone, the material shall conform to Section 9-03.17 Class B of the WSDOT Standard Specifications.

3.05.5 The backfill between the bedding and road ballast shall be import backfill conforming to City of Centralia Standard Details unless otherwise approved. Native material may be used as backfill outside the roadway prism if it meets the specification requirements as indicated on the Standard Details and testing results are provided to the City for approval before use.

3.05.6 The backfill shall be placed in uniform horizontal lifts, not to exceed 1-foot in depth and compacted to the following percentage of maximum dry density; 90 percent in the pipe zone and 95 percent from the pipe zone to the finish grade as determined by ASTM D1557-80 (Modified Proctor). Compaction shall be by mechanical means.

3.05.7 At the conclusion of each day the trench shall be totally backfilled or steel plates shall be used so that there is no open excavation over night.

3.06 Street Patching and Restoration

See Sections 4.15 and 4.16 for requirements regarding street patching and trench restoration.

3.07 Testing

Prior to acceptance and approval of construction, the following tests shall apply to each type of construction.

3.07.1 Gravity Sewer Air Test: Prior to acceptance of the project, the gravity sewer pipe shall be subject to a low pressure air test per WSDOT/APWA Standard Specifications. The contractor shall furnish all equipment and personnel for conducting the test under the observation of the City Inspector. The testing

equipment shall be subject to the approval of the City.

Immediately following the pipe cleaning, the pipe installation shall be tested with low pressure air.

The contractor shall make an air test for his own purposes prior to notifying the City to witness the test. The acceptance air test shall be made after the trench is backfilled and compacted and the roadway section is completed to subgrade.

All wyes, tees, and end of side sewer stubs shall be plugged with flexible joint caps, or acceptable alternates, securely fastened to withstand the internal test pressures. Such plugs or caps shall be readily removable and their removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.

3.07.2 Gravity Sewer TV Inspection: Testing of the sewer main shall include a television inspection at the contractor's expense. Television inspection shall be done after the air test has passed and before the roadway is paved. Immediately prior to a television inspection, enough water shall be run down the line so it comes out the lower manhole and the line is flushed clean. All debris collected after flushing shall be removed and disposed of by the contractor at their expense. It shall be disposed of at a legal dump site for this type of waste.

The television report shall include a written log along with a CD of the video footage in a format that is compatible with the Lucity software used by the City of Centralia. The audio portion of the video footage shall identify any laterals and defects seen. The on-screen counter footage shall be reset in each manhole. Each manhole shall be identified by location and numbering consistent with the plans.

Acceptance of the line will be made after the television inspection tape has been reviewed and approved by the City. Any tap to an existing system needs to be televised as well

3.07.3 Manhole Test: A vacuum test of all manholes is also required. The vacuum test shall be performed by creating a vacuum of 10 inches of mercury. If the vacuum does not drop in excess of 1-inch of mercury over the specified time period, the manhole passes test. The specified time period for every 2 feet of manhole depth is 5 seconds for a 48-inch diameter manhole and 6.5 seconds for a 60-inch manhole.

3.07.4 Force Main Hydrostatic Test: Prior to acceptance of the project, the pressure line and service lines shall be subjected to a hydrostatic pressure test of 100 psi for 15 minutes. Any leaks or imperfections developing under this pressure shall be remedied by the contractor. No air will be allowed in the line. The main shall be tested between valves. Insofar as possible, no hydrostatic pressure shall be placed against the opposite side of the valve being tested. The pressure test shall be

maintained while the entire installation is inspected.

The contractor shall provide all necessary equipment and shall perform all work connected with the tests. Tests shall be made after all connections have been done. This is to include any and all connections as shown on the plan. The contractor shall perform all tests to assure that the equipment to be used for the test is adequate and in good operating condition and that the air in the line has been released before requesting the City to witness the test. The contractor shall give the City a 48 hours notification of the test.

3.07.5 Wet Well Test: A water test for all wet wells in accordance with the manhole test for gravity sewer shall be required.

3.07.6 Force Main Mandrel Test: A mandrel test of all force main, in accordance with Section 7-17.3(2)G of the WSDOT/APWA Standard Specifications is required.

3.07.7 Pump Station Tests: Pump operation, alarms, and electrical inspection of all lift stations is required.

3.08 Gravity Sewer

General

All sewers shall be designed as a gravity system whenever physically and/or economically feasible. Addition of new pumping stations is undesirable.

3.09 Gravity Sewer Design Standards

The design of any sewer extension/connection shall conform to City Standards, Ecology's "Criteria of Sewage Works Design" and any applicable standards as set forth herein and in Sections 1.02 and 1.06.

The layout of extensions shall provide for the future continuation of the existing system as determined by the City. Lateral stub outs for each individual lot along the main extension shall be provided. The lateral stub outs shall be capped at the right of way line of the lots. See also Section 1.18 for utility extension information.

New gravity sewer systems shall be designed on the basis of an average daily per capita flow of sewage of not less than 100 gallons per day. See the Ecology "Criteria" table: Design Basis for Sewage. The numbers are assumed to cover normal infiltration, but an additional allowance shall be made where conditions are unfavorable. Generally, laterals and submain sewers should be designed to carry, when running full, not less than 400 gallons daily per capita contribution of sewage. When deviations from the foregoing per capita rates are used, a description of the procedure used for sewer design shall be submitted to the Engineering

Department for review and approval.

The General Notes found in the Standard Detail Section shall be included on any plans dealing with sanitary sewer design and/or construction.

3.10 Gravity Main Line

3.10.1 Sewer mains shall be sized for the ultimate development of the tributary area. Nothing shall preclude the City from requiring the installation of a larger sized main if the City determines a larger size is needed to meet the requirements for future service.

The minimum size for submains and mains shall be 8-inch inside diameter. The minimum size for a lateral within the street right-of-way shall be 6-inch inside diameter.

The design of the sewer line/system is subject to all other requirements as noted in this Chapter.

3.10.2 Main line sewers must be constructed using materials conforming to one of the following:

PVC pipe 6-inch to 15-inch diameter must meet either ASTM D 3034, SDR 35 solid wall pipe, or ASTM F 794 for solid seamless profile pipe.

PVC pipe 18-inch to 27-inch diameter shall conform to ASTM F 679 Type 1 only.

Ductile Iron, conforming to Section 9-05.13, WSDOT/APWA Standard Specifications and ANSI A21.51 or AWWA C151, and cement mortar lined. Minimum thickness shall be Class 51.

All joints for PVC pipe shall conform to ASTM D 3212 with rubber gaskets conforming to ASTM F 477.

3.10.3 Gravity sewer shall have a minimum depth of 36 inches to provide gravity service to adjoining parcels, adequate head room within manholes for maintenance personnel, future areas to be served, and vertical clearance between water and sewer lines. Actual depth will be determined by slope, flow, velocity, and elevation of existing system.

3.10.4 All building sewer connections to the main shall be made with a sanitary tee (wye) connection. Backflow prevention devices shall be provided as required by the Uniform Building Code (UBC) and Uniform Plumbing Code (UPC), W.A.C. 51.50. All new mains connecting to existing mains shall require the installation of a new manhole if not made at an existing manhole.

3.11 Connection to Existing System

3.11.1 At connection to existing system, all new sewer connections shall be physically plugged until all tests have been completed and the City approves the removal of the plug.

3.11.2 Connection of new main line pipe to existing manholes shall be accomplished by using provided knock-outs. Where knock-outs are not available, the manhole shall be core drilled for connection. The transition of connecting channels shall be constructed so as not to interrupt existing flow patterns. All connections shall utilize cor-seal grouting material. Manhole shall be vacuum tested after connection.

3.11.3 Connection of a pipe line to a system where a manhole is not available shall be accomplished by placing a concrete manhole base and setting manhole sections in accordance with the City of Centralia Standard Details. The existing pipe shall not be cut into until approval is received from the City.

3.11.4 Connections to manholes requiring a drop shall follow the criteria as outlined in Section 3.16.

3.11.5 Connections where an existing stub-out is not available or where a new building sewer is the same size as the existing main shall be accomplished by the installation of a new manhole.

3.11.6 Taps shall be done by use of a core drill and shall not be allowed to protrude into the existing main. The City shall be notified two (2) working days prior to any tap of a City sewer and a City Inspector shall be present to witness the tap. At the City's option, the City will install a tap for a fee after the contractor provides L&I acceptable access to the site.

3.11.7 All couplings shall be Fernco Strong Back RC couplings or an approved equal.

3.12 Manholes

Precast manholes shall meet the requirements of ASTM C 478 with either a precast base or a cast-in-place base made from 3000 psi structural concrete. Manholes shall be Type 1, 60-inch diameter minimum. The minimum clear opening in the manhole frame shall be 24 inches. Joints shall be rubber gasketed, conforming to ASTM C 443 and shall be grouted from the inside. Lift holes shall be grouted from the outside and inside the manhole. Grout shall be Tamms Red Bag 5-10 or 20 minute set or an approved equal. Grout shall be used in accordance with the manufacturer's recommendations. Concrete used around collars shall be Rapid Set concrete mix in the green bag manufactured by CTS Cement. Manholes constructed of other materials may be approved by the City Engineer, provided they meet the requirements of Section 2.318 of the Ecology "Criteria for Sewage Works Design". Material specifications need to be submitted for review before an alternate material will be considered, See standard drawings 3-02 and 3-03.

Eccentric manhole cones shall be offset so as to not be located in the tire track of a traveled lane.

Grade rings shall be a minimum of 2" and a maximum of 8" from top of cone or flat top to rim.

All newly installed manholes shall be coated with Ravens 405 with minimum thickness of 125 mil, for corrosion and infiltration inhibition purposes.

Manholes 5 feet or less shall be a Type 3 style. See the Standard Drawings for details.

Manholes with multiple inlets shall be channeled as to accept the CCTV video camera inspection system.

Manhole frames and covers shall be cast iron castings marked "Sewer", conforming to the requirements of ASTM A-30, Class 25, and shall be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects which would impair serviceability. Manhole frame and lids shall be Ergo Access assembly with cam lock security options and water resistant in either 4- or 6-inch heights. Any variation from this type of frame and cover must be approved by the City Engineer. Repairs of defects by welding or by use of smooth-on or similar material will not be permitted. Manhole rings and covers shall have machine-finished or ground-on seating surfaces so as to assure non-rocking fit in any position and interchangeability.

Manholes shall be equipped with a PRECO sewer guard watertight manhole insert or approved equal if new Ergo Access assembly water tight lids are not required by the City Engineer.

The casting device shall be such that the cover may be readily released from the ring and all movable parts shall be made of non-corrodible materials and otherwise arranged to avoid binding.

All casting shall be covered with a bituminous coating prior to delivery to the job site.

Safety steps shall be fabricated of polypropylene conforming to the ASTM D-4101 specification, injection-molded around a 0.5-inch ASTM A-615 grade 60 steel reinforcing bar. Steps shall project uniformly from the inside wall of the manhole. Steps shall be installed to form a continuous vertical ladder with rungs equally spaced in 12-inch centers.

Generally, gravity sewers shall be designed with straight alignment between manholes. Curved alignment may only be permitted when conditions warrant and with the advance approval of the City Engineer and the Centralia Public Works Department.

Manholes shall be provided at a maximum of 400-foot intervals, at intersections, and at changes in direction, grade, or pipe size. (See also Section 3.14.)

Minimum slope through the manhole shall be 0.10-foot from invert in to invert out.

Manholes shall have a minimum diameter of 60 inches.

All exterior joints of the manhole shall be sealed with WrapidSeal as manufactured by Canusa Corrosion Protection and Sealing. This includes the joint between manhole sections and the entire set of adjustment rings. It shall be applied in accordance with the manufacturer’s recommendation.

For pipes 15-inch diameter and larger, the size of the manhole shall be approved by the City Engineer.

3.13 Gravity Sewer Slope

All sewers shall be designed and constructed to give mean velocities, when flowing full, of not less than 2 feet per second based on Manning's formula using an "n" value of 0.013. Use of other practical "n" values may be permitted by the City if deemed justifiable on the basis of research or field data submitted.

The following minimum slopes shall be provided; however slopes grater than these are desirable.

Sewer Size, Inches	Minimum % Slope, % (Feet per 100 Feet)
8	0.40 (0.0040 Ft/Ft)
10	0.28 (0.0028 Ft/Ft)
12	0.22 (0.0022 Ft/Ft)
14	0.17 (0.0017 Ft/Ft)
15	0.15 (0.0015 Ft/Ft)
16	0.14 (0.0014 Ft/Ft)
18	0.12 (0.0012 Ft/Ft)
21	0.10 (0.0010 Ft/Ft)
24	0.08 (0.0008 Ft/Ft)
27	0.07 (0.0007 Ft/Ft)
30	0.06 (0.0006 Ft/Ft)
36	0.05 (0.0005 Ft/Ft)

Such decreased slopes will only be considered where the depth of flow will be 30 percent of the diameter or greater for design average flow. Whenever such decreased slopes are proposed, the design engineer shall furnish with the plans his/her computations of the depths of flow in such pipes at minimum, average, and daily or hourly rates of flow. Larger pipe size shall not be allowed to achieve lesser slopes. All main extensions shall be layed at the minimum slope for the design size to allow for future extension at the maximum depth.

Sewers shall be laid with uniform slope between manholes.

3.14 Increasing Size, Gravity Sewer

Manholes shall be provided where pipe size changes occur.

Where a smaller sewer joins a larger one, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient. An approximate method for securing these results is to place the 80 percent depth point of both sewers at the same elevation.

3.15 High Velocity Protection

Where velocities greater than 15 feet per second are expected, special provisions such as thrust blocking and piping materials shall be made to protect against displacement by erosion and shock, and the presence of hydrogen sulfide gas.

3.16 Drops

Straight grades between invert out of last manhole and connection to existing are preferred over drops whenever possible. Care must be taken when designing steep grades so as not to create a situation of excessive velocity or excavation. Grade changes associated with "sweeps" shall not be allowed.

An inside drop connection shall be provided for a sewer entering a manhole at an elevation of 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert shall be filleted to prevent solids deposition.

Inside drop structures shall be constructed per the City standard drawing with a minimum of a Reliner B-10 drop bowl to accommodate the installation of the City's CCTV camera.

Outside drop structures shall be constructed per the City standard drawing. Outside drops must be pre-approved and will only be allowed in special cases by the City Engineer.

3.17 Cleanouts

Cleanouts are not an acceptable substitute for manholes. However, they may be used in lieu of manholes at the end of 8-inch diameter lines of not more than 150 feet in length. Location of cleanouts for building sewers are governed by the UPC.

All cleanouts in City right-of-way shall be extended to grade and a 3-foot square by 4-inch thick concrete pad shall be installed around all cleanouts that are not in the pavement area.

3.18 Laterals

3.18.1 Connection to Sanitary Sewer

A lateral refers to the extension from a building sewer, beginning 3 feet outside the outer foundation wall at the structure to the sanitary sewer main. Building sewers from the main to the right-of-way line shall be a minimum of 6-inch in diameter. Maintenance of the entire building sewer is the responsibility of the property owner. The portion of line on private property shall be a minimum of 4-inch diameter for single-family and 6-inch diameter for duplex, commercial and industrial facilities. No laterals shall be connected directly to a manhole. New laterals shall be installed a minimum of two feet from a manhole or pipe joint on the main line. Where two laterals are installed adjacent to one another, two feet of separation between lateral connections is required.

Prior to connection of a building sewer to the public sewer a side sewer permit must be obtained from the City. Design criteria for a building sewer are covered by the UPC and the C.M.C. Chapter 15.10. Acceptable pipe material is PVC or ductile iron, as specified in Section 3.10.2. All couplings shall be Fernco Strong Back RC couplings or an approved equal. The Uniform Plumbing Code requires backwater valves on building sewers where the finished floor elevation is below the rim of the upstream manhole. Backwater valves, if they are installed, must be located within the building footprint upstream of the cleanout. The City is not responsible for their installation, maintenance, or operation. Inspection of the building sewer is the responsibility of the Wastewater Department (Centralia Public Works). Testing and inspection procedures are similar to those for main installation (excluding television inspection).

3.18.2 Abandonment Procedures

Plastic, HDPE, Cast Iron or Ductile Iron Pipe: obtain a permit from the Public Works Department (1100 N Tower Avenue, Centralia, WA 98531), find the pipe at the property line and the City right a-way and cut the line and install a gasket cap or plug on/in the line. If this is not feasible, install a mechanical plug (Cherne end of pipe original gripper plug) to the pipe end and tighten firmly assuring that it won't slip down the line. Then mark the end with a 2X4 extended to the surface and call for an inspection before backfilling. If the line crosses an easement or another parcel, contact the property owner and receive permission to dig on their property to abandon your side sewer lateral at the City's right of way.

Concrete or Clay Pipe: obtain a permit from the Public Works Department (1100 N Tower Avenue, Centralia, WA 98531),find side sewer pipe at property line and the City right a-way cut line and insert an mechanical plug (Cherne original in side of pipe gripper plug) inside the pipe approximately one foot and tighten securely. Next fill the line end flush with non-shrink grout. Then mark the end with a 2X4 extended to the surface and call for an inspection before backfilling. If the line crosses an easement or another parcel contact the property owner and receive permission to dig on their property to abandon your side sewer lateral at the City's right of way.

Demolished or Removed Buildings: The property owner or their contractor engaged in demolishing or removing any structure connected to the public sewer shall notify the City of such work, obtain an abandonment permit from the Public Works Department (1100 N Tower Avenue, Centralia, WA 98531), and shall expose and plug the side sewer connection of such structure at the property line in accordance with the requirements of these Standards. A Public Works Department inspector must observe and document all abandonments.

3.19 Lift Station Design Standards

The design of any lift station shall conform to City Standards, Ecology's "Criteria for Sewage Works Design" and applicable standards as set forth herein and in Sections 1.02 and 1.06. Each lift station shall be evaluated by the City Engineer for buoyancy resistance using site specific soil and groundwater information.

The following equipment and special modifications are standard requirements for all permanent wastewater lift stations constructed for the City of Centralia wastewater collection system. Lift stations shall be landscaped appropriately. The following are minimum standards and are not all inclusive.

3.19.1 The proponent is required to provide the City of Centralia a fee simple site outside existing right-of-way for construction of the lift station. The site shall have sufficient area with dimensions that allow for easy and safe access to the lift station.

3.19.2 A concrete slab 6 inches in depth shall surround the pump station wet well, with a minimum of 2 feet side exposure for all openings.

3.19.3 An access road that will support 20,000 pound axle loads throughout the year shall be provided from the nearest public road to the station, to allow for maintenance of the station.

3.19.4 Wet well shall be provided with a permanent attached, full depth, internal, polypropylene access ladder.

3.19.5 Station entry access shall be keyed to match all other City stations. The Best Lock key system shall be supplied for all other lock points and padlocks; a blank tumbler shall be supplied and the City will key the desired code.

3.19.6 Safety guards shall be provided for all exposed drive lines and couplings.

3.19.7 Spare parts shall be provided as recommended by the manufacturer, with a minimum of one spare impeller, one complete set of seals, filters, and one set of volute gaskets. Four (4) complete sets of O & M Manuals, and a list of the nearest dealers for spare parts and repairs shall be provided prior to acceptance.

3.19.8 The pumps, motors, and wet well shall be in compliance with current engineering practices. They shall be fully compatible as an assembly, and shall be engineered for the specific site. They shall be submersible pumps with stainless steel guide rails. There shall be a pressure gauge for the discharge pipe from each pump. The pumps shall be manufactured by Vaughn or approved by the City. All bolts, chains, and brackets shall be stainless steel.

3.19.9 The station shall be designed to have an isolation valve located in the discharge line no less than 12 pipe diameters from the wet well. Check valves shall have external arms to allow for back flushing. The check valve shall be as manufactured by Waterous and the isolation valve shall be a Dezuric plug valve with a quarter turn shut off. There shall also be a bypass pumping port included with a camloc fitting.

3.19.10 The isolation and check valve shall be housed in a precast concrete vault. The vault shall have a minimum size of 6-foot by 6-foot inside dimension. There shall be a bottom drain that drains back into the wet well. The vault hatch shall be a minimum of 3 feet (L) x 4 feet (W). The hatch shall be supplied with a safety net.

3.19.11 City water shall be provided to the station for hose down and pump seal supply. An approved backflow prevention device shall be provided on the water supply line to protect the public water system. The backflow device shall be tested and certified by a State-Certified Backflow Tester prior to acceptance of the system. The cost of the backflow prevention device, water service, and testing will be the developer's responsibility. If the station is located in the 100-year flood plain, all equipment, controls, and accessories shall be flood proofed.

3.19.12 The station shall have a pigging port for pigging the force main. Final design to be approved by the City of Centralia Wastewater Department. The station will also have a flow meter which shall be approved by the City.

3.19.13 The entire interior of the wet well and vault shall be coated. The interior coating shall be Ravens Lining 405. All exterior joints of the wet well and vault shall be wrapped with WrapidSeal as manufactured by Canusa Protection and Sealing.

3.19.14 Pump stations up to 200 amp service will be 240 volt 3 phase 4 wire. Any above 200 amp will be 480 volt, 3 phase 4 wire. A transformer will be provided for outlets and lighting per standards. In a special case, where 3 phase power is not available, the City will consider a single phase pump station. Security lighting shall be provided for the station. There shall be a minimum of one light. If an overhead power service is used, the lines shall be located so that they do not interfere with the installation or removal of the mechanical equipment at the station. The cables shall be placed such that all work with the crane can meet the set back requirements from the cables.

3.19.15 All electrical equipment shall be enclosed in a free-standing, vandal-proof, all-weather enclosure, NEMA 3R or better. Electrical control panel shall be manufactured by Superior Custom Control, located at 125 27th NE, Seattle, WA 98125, 206-362-8866.

3.19.16 All pump stations shall have an emergency power hookup or an on-site emergency power generator. The City will make the decision regarding which will be required based on the flows and location of the proposed station. All equipment shall be listed, labeled, and approved for the application.

3.19.17 The electrical equipment shall include a 5 KVA minimum transformer for the 120 volt single phase equipment.

3.19.18 Lift station telemetry shall be current with the City of Centralia Telemetry System. If the catalog number changes, you will use the one that is the City Standards at the time of design approval.

3.19.19 Pump motors shall be 3 phase, 240 volt or 480 volt 4 wire as described in 3.19.14. They shall be high efficiency rated.

3.19.20 Wet well sizing criteria:

Provide a holding period not to exceed 10 minutes for the design average flow, per Ecology's "Criteria for Sewage Works Design", Section 3.222.

Provide for a minimum of 45 seconds pump run time per pump cycle, and a maximum of ten pump cycles per hour. The minimum size of wet well shall be 96-inch diameter with a minimum of 7 feet of depth below the elevation of the inlet. Station will also be evaluated for odor control and type during review.

3.19.21 Lift station emergency storage criteria:

Option #1:

Emergency storage shall be provided for 2 hours of design average flow, using a peaking factor of 2. This calculation shall be submitted with the system design and must be approved by the City Engineer.

Note: The peaking factor was set at 2, rather than 3 or 4, due to the typical emergency being caused by power outage.

All volume above area basements and below the hydraulic gradient may be used as emergency storage (wet well, conduit, manholes). This condition must be verified by calculation and submitted for approval by the City Engineer.

Option #2:

Provide emergency power on site per Ecology's "Criteria for Sewage Works Design", Section 3.34

3.19.22 The pump electrical controls shall be equipped to automatically alternate the pumps.

3.19.23 All replacement parts shall be available in the U.S.A. Permission in writing from the City shall be required and obtained prior to the review and approval of plans and specifications for the installation of a wastewater lift station.

3.19.24 Alarm and station status points:

High wet well
Pump 1 run
Pump 2 run
Pump 1 auto
Pump 2 auto
Pump 1 fail
Pump 2 fail
All pumps not auto

The contractor shall supply and install all sensors and auxiliary contacts for the above points and connect them with the appropriate size wire in conduit to terminal strip. The points terminated on the strip shall be identified by number and labeled showing the number and type.

3.19.25 All pump station sites shall be enclosed with a 6-foot chain link fence with slats. The fence shall conform to the WSDOT Standard Specifications and WSDOT Standard Plan L-20.10-03. The slats shall be redwood or an approved equal. Location of fence shall be approved by the City.

3.20 Pressure Sewer (Force Main) General

Low pressure systems, i.e., force mains, may be considered for situations where high ground water table or topography make gravity sewer impractical. If a system is approved a tracer wire installation will be required. However, STEP systems are not approved for the City of Centralia wastewater collection system.

3.21 Pressure Sewer Design Standards

The design of any sewer extension/connection shall conform to City Standards, Ecology's "Criteria for Sewage Works Design", and any applicable standards as set forth herein and in Sections 1.02 and 1.06.

The layout of extensions shall provide for the future continuation of the existing system as determined by the City. In addition, main extensions shall be extended to and across the side of the affected property fronting the main.

The system shall be designed at full depth of flow on the basis of an average daily per capita flow as shown on the Ecology table referenced in Section 3.09. A friction factor of 0.013 shall be used for Manning's "n" value.

New sewer systems shall be designed by methods in conjunction with the basis of per capita flow rates. Methods shall include the use of peaking factors for the contributing area, allowances for future commercial and industrial areas, and modification of per capita flow rates based on specific data (I/I). Documentation of the alternative method used shall be provided along with the plans.

The General Notes found in the Standard Detail Section shall be included on any plans dealing with pressure sanitary sewer design and/or construction.

3.22 Force Main

3.22.1 Material: Force mains for sizes up to 12 inches shall be ductile iron AWWA C151 Class 51 or PVC C900 with ductile iron fittings and gasketed joints. Tracer wire and brass wedge requirements are as in Section 2.03. For 14 to 24-inch mains, pipe shall be ductile iron AWWA C151 Class 51 or PVC C905 with ductile iron fittings and gasketed joints. A more rigid pipe may be required where unlimited trench widths occur. All ductile iron pipe and fittings shall be epoxy coated or PE lined and designed for use with corrosive materials.

3.22.2 Depth: Force mains shall have a minimum 36 inches of cover to top of pipe. See Section 2.13 for sanitary sewer/water main crossings requirements.

3.22.3 Velocity: The minimum velocity allowed is 3 feet per second at average dry weather flow. Three feet per second is required to scour settled solids. Maximum velocity allowed shall be 6 feet per second.

3.23 Pressure Sewer Surge Protection

PVC pipe is subject to fatigue failure due to cyclic surge pressures. Lift stations shall be constructed to minimize rapid changes in velocities and a properly sized surge tank and "soft start and stop" pump controls shall be used.

3.24 Pressure Sewer Air/Vacuum Valves

Air release valves and air/vacuum valves shall be located at the high points of the line within a standard 48-inch manhole or a comparable sized, approved vault. Air release valves shall be fitted with an activated carbon canister to absorb compounds with disagreeable odors prior to releasing the air to the surrounding area. Grades shall be designed to minimize the need for air/vacuum valves when practical. Vehicular access to valve is required for maintenance.

3.25 Force Main Drain

Provisions to drain a force main to facilitate repairs or to temporarily remove force main from service shall be provided. This may be accomplished through the use of a valved tee connected to a drain line at the low point of the line. A manhole shall be set over the force main at the valved tee.

3.26 Pressure Sewer Thrust Blocking

Location of thrust blocking shall be shown on plans. Thrust block concrete shall be Class B poured against undisturbed earth. A plastic barrier shall be placed between all thrust blocks and fittings.

See Standard Drawings 2-10 and 2-18 in the Water Chapter. Designed and approved restraining joint systems may be allowed in lieu of thrust blocking. Restraining joint brand, type and size shall be specified on the plans.

3.27 Force Main Termination

Hydrogen sulfide (H2S) odors and the buildup of sulfuric acid (H2SO4) occur in the operation of a force main. To mitigate these conditions, some type of control method(s) shall be used. This may include chemical addition at the pump station and/or the re-aeration of the wastewater at or near the terminus. Re-aeration may include the following:

Construction of a vault housing an aspiration assembly.

The use of hydraulic fall (vertical siphon) within the terminal manhole.

High velocity discharge with smooth transition so as to not cause splashing of force main into the downstream gravity sewer.

These methods all require an adequate source of fresh air at the vault or manhole. At a minimum, the manhole at the terminus and the manholes directly upstream and downstream of the terminus shall be coated with Raven 405 or approved equal which is resistant to sulfuric acid and hydrogen sulfide. The sewer line pipe connecting the manhole at the terminus to the downstream manhole shall also be protected from the effects of hydrogen sulfide. If the existing pipe is not PVC, the existing line must be coated with an approved product. All new manholes installed on the City's system shall also be coated.

3.28 Pump Station Upgrades

The addition of a new pump station or new gravity sewer main extension may cause new flows high enough to make improvements at existing pump stations necessary. Any required upgrades of existing stations shall conform to these standards for a new station.

3.29 Residential Grinder Pumps

3.29.1 A grinder system is a facility consisting of a holding tank, grinder pump and pressure piping system for conveying the wastewater and solids into the gravity sewer system.

3.29.2 The City may allow the installation of residential grinder pumps where feasible. The Wastewater Department (Centralia Public Works) will make the final decision regarding the approval of a grinder pump installation.

Feasible:

1. *Only where a gravity sewer system does not exist and it is physically impossible to accommodate the installation of a gravity main extension.*

2. *Special circumstances make standard methods unusable*.

3.29.3 The grinder pump system shall be designed in accordance with Section C1-10 Alternative Systems of the Ecology "Criteria for Sewage Works Design" and these guidelines.

3.29.4 The Proposed grinder pump system shall be submitted and approved by the City of Centralia Wastewater Department.

The owner shall be responsible for the power bill for the life of the system.

An emergency/backup power supply may be required for larger or commercial

systems and shall be the responsibility of the customer.

3.29.5 **Odor/Corrosion Control**

All grinder systems shall be required to mitigate for odors and corrosion.

At a minimum, the manholes directly upstream and downstream of the connection point to the City's gravity sewer main shall be coated with Ravens 405 or an approved equal. If the main line pipe between the two manholes is not PVC, then it must be coated with an approved product as well. All new manholes installed on the City's system shall also be coated. Carbon canisters manufactured by SweetStreet must be installed in the coated manholes.

All other systems must be evaluated for the potential to cause odors and corrosion by an engineer licensed within the State of Washington.

All calculation used to determine said potential and proposed odor/corrosion mitigation efforts shall be submitted to the City for review.

The developer/contractor shall be responsible for all costs accrued during the review process, which may include outside consultation from a licensed engineering firm contracted to the City.

If it is found that the minimum requirements or proposed mitigation efforts are insufficient the City will prescribe an acceptable solution.

All costs incurred in the development of a City provided solution shall be the responsibility of the developer/contractor.

3.29.8 Commercial grinder systems that have kitchen or cooking facilities, such as churches, community gathering places, restaurants, schools, etc., shall require installation of a grease trap/grease interceptor.

3.29.9 All commercial/industrial installation may be required to install a flow meter at the owner's expense if deemed necessary by the Wastewater Department (Centralia Public Works).

3.29.10 **Grinder System Force Main:**

A. Mainline/common pressure main. The minimum pipe size used is 2 inches nominal diameter. This is based on maintenance requirements rather than flow. Pipe will be PVC, or SDR 21 (200) with rubber gasket joints. Gaskets will comply with ASTM D 1869. Mains will have a minimum 36 inches of cover to top of pipe. See Ecology's criteria for sewage works design for sanitary sewer/water

main crossing requirements.

B. Service Line. Service connection pipe will be minimum 1-1/4 inch diameter, Schedule 80 PVC water pipe, solvent weld joint located at 90 degress to the mainline when possible. Solvent cements and primer for joining PVC pipe and fittings will comply with ASTM D2564 and will be used as recommended by the pipe and fitting manufacturers. Service will have a minimum 24 inches of cover to top of pipe. The service line shall have two boxes, one within two feet of the station which will house a clean-out and an approved lateral connection (clean-out box). The second box will house an approved lateral connection at the property line (collector box). See Standard Plan 3-10GP.

C. Building Sewer. The gravity building sewer between the building and the tank will be designed and installed in accordance with the UPC as adopted by the City. The owner will be responsible for maintenance of the building sewer.

D. All pipes will be installed with continuous tracer tape installed 12 to 18 inches under the proposed finished grade. The marker tape will be marked "sewer" and be plastic, non-biodegradable metal core or backing that can be detected by a standard metal detector. Tape will be Terra Tape "D" or approved equal. In addition to tracer tape, install 12-gauge-coated copper wire wrapped around the pipe, brought up and tied off at the valve boxes. A 1-pound magnesium anode will be buried with the sewer line wire splices and connections to anodes will join wires both mechanically and electrically and will employ epoxy resin or heat shrink tape insulation. Furnishing and installing the tracer wire and anodes will be incidental to pipe installation.

E. All pipes shall be bedded with sand or suitable material to protect them from backfilling and settling after construction.

F. Pressure main will be required to have air release valves installed at the high points and or at every 2,000 to 2,500 feet along a horizontal run that lacks a clearly defined high point.

GRINDER PUMP INSTALLATION

Contact the City for a pre-construction meeting for pump tank and control panel locations before any installation. Contractor shall determine the depth of the existing or future building sewer discharge before any installation, to determine which system will be suitable. At the time of submittal, a service agreement between the property owner and the City must be signed and filed with the City of Centralia Public Works Department and recorded in the Lewis County Auditor’s office.

The grinder pump lift station package shall include the following items:

a) Corrugated HDPE tank with single complete pump unit, ready for installation. The tank will have a 1-1/4 NPT discharge connection and a 4-or 6-inch inlet grommet.

b) The tank shall include an internal check valve assembly.

c) The package system shall meet the requirements of the L & I, Division for Residential, grinder pump systems.

d) The tank location shall be accessible for maintenance and repair. The tank cover shall be approximately 3 inches above finished grade. Finish grade shall slope away from the station and the station shall not be installed within a "pot hole". No plants, fences, or other obstructions are to be located within 5 feet of the tank and the valve boxes, and the property owner shall maintain a 5-foot clear zone around the tank.

e) The location of the breaker panel shall be:

- Accessible for maintenance and repair;
- In sight of the tank;
- The bottom of the Panel must be 5 feet above finished grade; and
- The alarm light shall be visible from 50 feet and must be visible in a 180 degree radius.

f) The maximum distance between the breaker panel and the grinder tank shall be 25 feet, and with sight and easy access.

g) Fences, bushes, or any other object shall not hide the alarm light or hinder in the maintenance and/or repair of the system.

h) There shall be no additional junction boxes or splices made once the system has been installed and inspected by City personnel. Anyone tampering with the approved system shall be liable to the City for any expense, loss, damage, cost of inspection or cost of correction incurred by the City, plus a penalty not to exceed $1000.00.

CALL FOR INSPECTION

Arrangements for inspection of a side sewer installation shall be made with the City 24-hours in advance. The City reserves the right to set the time for inspection. All inspections will be performed during normal working hours. Cancellations must be made a minimum of one hour before the scheduled appointment.

Additional inspection may result in additional fees.

(For inspections call 360-330-7512)

TESTING OR FINAL INSTALLATION – GRINDER PUMP

Sewers using pump systems shall be tested at 50 psi, or as directed by the City for actual conditions. The following is the procedure used for testing the discharge line:

a) Close the in-line ball valve in the grinder valve box.

b) Open the riser ball valve in the grinder valve box.

c) Close the ball valve at the collector valve box for the street connection.

d) Using hand pump, pressurize with water or air, introduced at the low end, to test for leakage.

e) Hold the required pressure for ten minutes. Allowable leakage = 0.

AS-BUILT DRAWING

As-built drawings shall be prepared by the contractor on a CAD format and checked by the Wastewater Department Inspector (Centralia Public Works) in conjunction with the permit, and shall show the as-built location of all the components of the installations. Also a copy of all maintenance manuals for the system will need to be supplied to the City for record keeping.

3.30 Vehicle and Equipment Washwater Discharge

All businesses that regularly wash vehicles and/or equipment surfaces shall conform to the requirements of the Best Management Practices Manual for Vehicle and Equipment Washwater Discharges and the City-adopted version of the Stormwater Management Manual for Western Washington prepared by Ecology. These requirements will also apply to farm/construction vehicles, equipment rinsing, mobile washers, new/used car dealerships, and charity car washes.

3.30.1 Businesses that are specifically a ″Car Wash″, shall be designed for zero (0) discharge to the public sanitary sewer system. These businesses shall be required to install a flow meter on the discharge line connecting to the City's sanitary sewer system.

3.31 Grease Recovery Devices (GRD)

3.31.1 All Food Service Establishment (FSE) shall have a (GRD) to serve their property, the size will be determined when plans are reviewed by the Wastewater Department Administrative Authority or there representative.

LIST OF DRAWINGS

CHAPTER 3: SANITARY SEWER

CHAPTER 4
STREETS

4.01 General

Street design must provide for the maximum loading conditions anticipated. The width and grade of the pavement must conform to specific standards set forth herein for safety and uniformity.

4.02 Design Standards

The design of streets and roads shall depend upon their type and usage. The design elements of City streets shall conform to City Standards as set forth herein and current design practice as set forth in Sections 1.02 and 1.06. Standard design structures are shown on detail drawings at the end of this chapter. Alternate structures may be used based on the criteria as outlined in Section 4.14.

The layout of streets shall provide for the continuation of existing streets in adjoining subdivisions or of their proper projection when adjoining property is not subdivided. (See the table of the Minimum Street Design Standards).

4.02.1 Alignment: Alignment of major arterials, minor arterials, and collectors shall conform as nearly as possible with that shown in the Comprehensive Plan.

4.02.2 Grade: Street grade should conform closely to the natural contour of the land. In some cases a different grade may be required by the City Engineer. The minimum allowable grade shall be 0.5 percent. The maximum allowable grade shall be 8 to 10 percent, depending upon the street classification.

4.02.3 Width: The pavement and right-of-way width depend upon the street classification. Street widths shall be measured from face of curb to face of curb on streets with cement concrete curb.

4.02.4 Clear Zone: The clear zone shall be two (2) feet from the face of curb to the edge of the obstruction on streets that have a curb section. For all other locations, the clear zone shall conform to Section 1600.03 – Clear Zone of the W.S.D.O.T. Design Manual.

4.02.5 The General Notes found in the Standard Plan Section shall be included on any plans dealing with street design in addition to all applicable requirements in Section 1.06.

MINIMUM STREET DESIGN STANDARDS

DESIGN STANDARD	PRINCIPAL ARTERIAL	MINOR ARTERIAL	MAJOR/MINOR COLLECTOR	LOCAL ACCESS
MINIMUM RIGHT-OF-WAY	70' See Centralia Standard Drawing 4-05	70' See Centralia Standard Drawing 4-06	60' See Centralia Standard Drawing 4-07	60' See Centralia Standard Drawing 4-08
MINIMUM CURB TO CURB WIDTH	56′	44′	44′	36′
MINIMUM MAXIMUM GRADE	0.5% - 8.0%	0.5% - 10.0%	0.5% -10.0%	0.5% - 10.0%
CUL-DE-SAC RADIUS (FACE OF CURB)	N/A	48′	48′	48′
INTERSECTION CURB RADIUS	50'	50'	50′	30'
POSTED SPEED (MPH)	35	35	25	25
DESIGN SPEED (MPH)	40	40	30	30
MINIMUM CENTERLINE RADIUS	w/superelevation* per AASHTO w/o superelevation 600'	150'	150'	100'

4.03 Functional Classification

City streets are divided into principal arterial, minor arterial, major collector, minor collector, and local access streets in accordance with regional transportation needs and the functional use each serves. Function is the controlling element for classification and shall govern right-of-way, road width, and road geometrics. A list is available to assist the developer in determining the classification of a particular street. New streets will be classified by the City Engineer.

4.04 Naming and Addressing

Streets and roads shall be named according to specific criteria. "Avenues" shall run east-west. "Streets" shall run north-south and are named. "Drives" are irregular or diagonal streets over two grid blocks in length not conforming to the grid pattern. "Places" shall be north-south streets, parallel to but between streets. "Ways" shall be east-west streets parallel to but between avenues. "Courts" shall be cul-de-sacs which cannot be extended. Courts are to be named or numbered and carry the name or the number of the preceding street or avenue. "Loops" shall be small loop-type streets to carry the name of the street from which they originate. "Lanes" shall be private streets.

An address number will be assigned to all new buildings at the time the building permit is issued. It is then the owner's responsibility to see that the house/building numbers are placed clearly and visibly at the main entrance to the property or at the principle place of ingress.

The developer must check with the Community Development Department regarding the naming of streets and addressing. This should be done at the time the preliminary plat is submitted and again upon approval of the final plat. The Community Development Department will insure that the name assigned to a new street is consistent with the policies of the City.

4.05 Signing and Striping

Street signs are defined as any regulatory, warning, and guide signs. The developer is responsible for providing all traffic control signs. Traffic control signing shall comply with the provisions as established by the latest edition of the MUTCD.

Street signs, including poles and hardware, will be paid for by the developer but will be designed, furnished and installed by the City to establish uniformity. A written request must be submitted to the Engineering Department when signing is needed and the developer will be billed upon completion. Street name signs shall display street names and grid numbers. Street name signs for private roads shall have "Private Road" labeled on the sign below the street name.

4.06 Right-of Way

Right-of-way is determined by the functional classification of a street. See Table on Minimum Street Design Standards on Page 4-2 for minimum right-of-way widths for each clarification of street.

Right-of-way requirements may be increased if additional lanes, pockets, transit lanes, bus loading zones, operational speed, bike lanes, utilities, schools or other factors are required as determined by the City Engineer.

Right-of-way shall be conveyed to the City on a recorded plat or by a right-of-way dedication deed.

4.07 Private Streets

4.07.1 A private street is a private vehicular access provided for an access tract, easement, or other legal means to serve private property; privately owned and maintained.

4.07.2 Private streets shall serve no more than thirty lots or dwelling units on a dead end street. You can serve additional lots or dwelling units if the private street has two or more accesses to a public street

4.07.3 The minimum pavement width for a private street serving thirty or less lots on dwelling units shall be 26 feet. See Standard Plan 4-12.

4.07.4 The minimum pavement width for a private street serving more than thirty lots shall be 32 feet. See Standard Plan 4-11.

4.07.5 If your private street is longer than 150 feet then it must have an approved turn around. The turn around must be in accordance with Standard Plans 4-13, 4-14, and 4-15.

4.07.6 The minimum grade shall be 0.5% and the maximum grade shall be 10.0% for a private street.

4.07.7 There shall be no parking allowed along any private street. The street must be accessible at all times for emergency and public service vehicle use. All private streets must be signed "No Parking Anytime" on both sides.

4.07.8 The private street shall not land lock any present or future parcels or obstruct public street circulation.

4.07.9 All private streets shall have a road maintenance agreement that has been approved by the City Engineer and recorded in the Lewis County Auditor's office. The maintenance agreement shall outline the maintenance and future reconstruction of the private street. This maintenance shall be by the private property owner, homeowner's association or other legal entity.

4.07.10 Acceptance of a private street as a public street will be considered only if the street meets all current applicable public street standards including right-of-way width.

4.08 Street Frontage Improvements

4.08.1

a. Frontage Improvements are required on all public streets associated with subdivisions, commercial, industrial and multifamily developments. This includes R:4, R:8, R:15, R:20, C-1, C-2, C-3, LBD, H-1, M-1, M-2, and Port Master Plan Districts of our zoning ordinance. They are also required on all new public streets created in these zoning districts by new platting.

b Frontage improvements are required on all public streets designated as functionally classified on the map shown on Standard Plan 4-18 associated with a short subdivision (short plat) where more than two (2) lots will be created and will be contiguous to a lot that already has frontage improvements in all the zoning districts stated in 4.08.1a above.

4.08.2 Standard Detail 4-18 is a map that shows the functional classified streets and the school walk routes.

4.08.3 Frontage improvements include reconstruction of the half width of an existing street, curb, gutter, sidewalk, storm drainage, street lighting, traffic signal modification, utility relocation or installation, undergrounding of franchised utilities, landscaping and irrigation, all per these guidelines.

4.08.4 Frontage improvement plans shall be prepared by a licensed civil engineer registered in the State of Washington.

4.08.5 At a minimum, all frontage improvements shall be made across the full frontage of the property being developed from centerline to right-of-way line. For developments on an existing street, the existing street will be reconstructed from the centerline of the street to the new curb and gutter. The reconstruction shall conform to the appropriate street section detail.

4.09 Cul-de-sac

Streets designed to have one end permanently closed shall have a cul-de-sac conforming to these standards on and the International Fire Code on the dead end. No parking will be allowed within the cul-de-sac.

4.10 Medians

A median shall be in addition to, not part of, the specified roadway width. Medians shall be designed so as not to limit turning radius or sight distance at intersections.

Landscaping and irrigation shall be installed when directed by the City Engineer.

4.11 Intersections

4.11.1 Traffic control will be as specified in the current edition of the MUTCD or as modified by the City Engineer as a result of appropriate traffic engineering studies.

4.11.2 Street intersections shall be laid out so as to intersect as nearly as possible at right angles. Sharp angled intersections shall be avoided. For reasons of traffic safety, a ″T″ intersection (three-legged) is preferable to the crossroad (four-legged) intersection for local access streets. For safe design, the following types of intersection features should be avoided:

1. Intersections with more than four (4) intersecting streets;

2. "Y" type intersections where streets meet at acute angles;

3. Intersections adjacent to bridges and other sight obstructions;

4. In no case shall the angle of intersection be less than 75 degrees nor greater than 105 degrees. The preferred angle of intersection is 90 degrees.

4.11.3 Spacing between adjacent intersecting streets, whether crossing or "T", should be as follows:

When highest classification involved is:	Minimum centerline offset should be:
Major Arterial	350 feet
Minor Arterial	300 feet
Major Collector	200 feet
Minor Collector	200 feet
Local Access	150 feet

When different class streets intersect, the higher standard shall apply on curb radii. Deviations to this may be allowed at the direction of the City Engineer.

4.11.4 On sloping approaches at an intersection, landings shall be provided with grade not to exceed one-foot difference in elevation for a distance of 30 feet approaching any arterial or 20 feet approaching a collector or local access street, measured from nearest right-of-way line (extended) of intersecting street.

4.12 Driveways

4.12.1 General

1. Details of driveway sections are located in the standard drawings at the end of Chapter 5 "Sidewalks and Curbs".

2. At the time of new construction or redevelopment of an existing development all abandoned driveway areas on the same frontage shall be removed and the curbing and sidewalk or shoulder and ditch section shall be properly restored.

3. All driveway connections through the concrete sidewalk shall be constructed of Class 4000 Portland Cement Concrete and shall be subject to the same testing and compaction requirements as curb, gutter, and sidewalk construction. Driveway entrances where no curb, gutter and sidewalk exist and are not required for the development of the lot shall be asphalt instead of concrete.

4. Joint-use driveways serving two adjacent parcels may be built on their common boundary upon formal written agreement by both property owners and approval of the City. The agreement shall be a recorded easement for both parcels of land specifying joint usage. If done during platting process, the easement shall show on the face of the plat.

5. Grade breaks, including the tie to the roadway, shall be constructed as smooth vertical curves. The maximum change in driveway grade shall be 8 percent within any 10 feet of distance on a crest and 10 percent within any 10 feet of distance on a sag vertical curve.

6. No commercial driveway shall be approved where backing onto the sidewalk or street, or any portion of the public right-of-way will occur. This does not apply to alleys where backing may be allowed.

7. The minimum width of a driveway shall be ten feet and the maximum width shall be 30 feet. Any deviation from this requirement must be approved by the Site Plan Review Committee. If the driveway is longer than 150 feet then the width of the driveway must meet the requirements outlined in the International Fire Code for a fire access road.

8. The minimum spacing between driveway accesses shall be 125 feet. If the lot widths do not allow for this minimum spacing then the driveways will be at the extremes of the lots so that the maximum possible spacing is obtained. Driveways on opposite sides of the street can be built directly across from one another.

9. All driveways must be placed a minimum of 100 feet from the right-of-way line of a public street. If the lot width does not allow this minimum requirement to be met then the driveway shall be built at the extreme of the property to provide the maximum spacing possible between the driveway and a public street.

10. Only one driveway will be allowed for each tract of property separately owned that has less than 150 feet of frontage on a public street.

11. No more than two driveways shall be allowed for each tract of property separately owned that has more than 150 feet of frontage on a public street. For purposes of such limitation properties which are continuous to each other and are owned by the party shall be considered to be one tract of property. If the property has access to two (2) or more public streets (i.e., corner property) only one driveway shall be allowed off each street and the maximum limit of two (2) driveways per tract of property

separately owned would still apply. Any deviation from the number of driveways allowed per this section to accommodate unusual circumstances must be approved by the SPRC.

12. Driveways giving direct access onto arterials may be denied if alternate access is available.

13. Driveways from private streets shall meet all the same requirements listed above for public streets.

14. Driveway surface shall be asphalt or concrete for the first 200 feet from the adjoining roadway surface. Asphalt is required within the right of way where no curb/gutter and sidewalk is present or required. Gravel driveways are not allowed.

4.13 Sight Obstruction

The sight distance area is a clear-view triangle formed on all intersections by extending two (2) lines of specified length (A) and (B), from the center of the intersecting streets along the centerlines of both streets and connecting those endpoints to form the hypotenuse of the triangle. See Standard Drawing 4-17 at the end of this chapter. The area within the triangle shall be subject to said restrictions to maintain a clear view on the intersection approaches.

*All landscaping and the planting in the public right-of-way shall be in accordance with City of Centralia Parks Department tree ordinance.

4.13.1 Stop or Yield Controlled Intersection

Providing adequate sight distance from a street or driveway is one of the most important considerations in ensuring safe streets and driveway operation. The intersection site distances given in the table below applies to intersections and driveways with an ADT greater than 20.

SIGHT DISTANCE
(FT)

Operating speed (mph)	Intersection Sight Distance			Stopping Sight Distance
	2 Lanes	4+ Lanes	Principal Arterial 2+ Lanes	
20	210	230	230	125
25	255	280	300	150
30	310	340	375	200
35	355	390	470	250
40	410	450	575	325

Other factors such as vertical and horizontal curves and roadway grades also need to be taken into account. Such factors can require necessary modification to the intersection sight distance given in the table above.

Sight distance measured from a point on the minor road or driveway 15 feet from the edge (extended) of the major road pavement (or nearest traffic lane if parking is permitted) and measured from a height of eye at 3.50 feet on the minor road to height of object 4.25 feet on the major road.

4.13.2 Uncontrolled Intersection

Speed Limit (mph)	Sight Distance (Ft)	
	(A) Major Street	(B) Minor Street
20	90	90
25	110	110
30	130	130
35	155	155
40	180	180

4.13.3 The vertical clearance area within the sight distance triangle shall be free from obstructions to a motor vehicle operator's view between a height of 3 feet and 7 feet above the existing surface of the street.

4.13.4 Exclusions: Sight obstructions that may be excluded from these requirements include: fences in conformance with the Guidelines, utility poles, regulatory signs, trees trimmed from the base to a height of 7 feet above the street, places where the contour of the ground is such that there can be no cross visibility at the intersection, saplings or plant species of open growth habits and not in the form of a hedge which are so planted and trimmed as to leave at all seasons a clear and unobstructed cross view, buildings constructed in conformance with the provisions of appropriate zoning regulations and pre-existing buildings.

4.14 Surfacing Requirements

The following are the surfacing requirements for each application listed. These designs are based on Washington stabilimeter subgrade R-value of 5. Alternate structures will be accepted based on soil tests to determine the actual Washington stabilimeter R-value. Soil tests and a completed design by a licensed engineer for each road classification shall accompany plans submitted if other than the structures shown below are used.

One soil sample per each 500 LF of centerline with three (3) minimum per project representative of the roadway subgrade shall be taken to determine a statistical representation of the existing soil conditions.

Soil tests shall be performed by an engineering firm specializing in soils analysis.

The soils report, signed and stamped by a soils engineer licensed by the State of Washington, shall be based on actual soils tests and submitted with the plans. All depths indicated are a minimum compacted depth.

4.14.1 Principal Arterial Streets:

Surfacing:	6" Class ½-inch PG64-22 Hot Mix Asphalt Concrete
Top Course:	2" Crushed Surfacing Top Course
Base:	2' Ballast

Alternate:

Surfacing:	6" Class ½-inch PG64-22 Hot Mix Asphalt Concrete
Top Course:	7" Asphalt Treated Base (ATB)
Base:	2′ Crushed Surfacing Base Course

4.14.2 Minor Arterial Streets:

Surfacing:	4" Class ½-inch PG64-22 Hot Mix Asphalt Concrete
Top Course:	2" Crushed Surfacing Base Course
Base:	2' Ballast

Alternate:

Surfacing:	4" Class ½-inch PG64-22 Hot Mix Asphalt Concrete
Top Course:	7" Asphalt Treated Base (ATB)
Base:	2′ Crushed Surfacing Base Course

4.14.3 Minor/Major Collection Streets:

Surfacing:	4" Class ½-inch PG64-22 Hot Mix Asphalt Concrete
Top Course:	2" Crushed Surfacing Top Course
Base:	16" Ballast

Alternate:

Surfacing:	4" Class ½-inch PG64-22 Hot Mix Asphalt Concrete
Top Course:	5" Asphalt Treated Base (ATB)
Base:	2′ Crushed Surfacing Base Course

4.14.4 Local Access Streets:

Surfacing:	3" Class ½-inch PG64-22 Hot Mix Asphalt Concrete
Top Course:	2" Crushed Surfacing Top Course
Base:	8" Ballast

Alternate:

Surfacing:	3" Class ½-inch PG64-22 Hot Mix Asphalt Concrete
Top Course:	3" Asphalt Treated Base (ATB)
Base:	2′ Crushed Surfacing Base Course

4.14.5 Sidewalks:

Surfacing:	4" Commercial Concrete
Base:	1" Crushed Surfacing Top Course or well graded sand
Surfacing:	Asphalt: Asphalt sidewalks will not be permitted unless otherwise approved by the City Engineer.

4.14.6 Driveway:

Surfacing:	6" Class 4000 Concrete
Base:	1" Crushed Surfacing Top Course or well graded sand

4.14.7 Class I Bikeway:

Surfacing:	4" Commercial Concrete
Base:	1" Crushed Top Course

Alternate:

Surfacing:	2.50" Class B Asphalt Concrete
Base:	4" Ballast

4.15 Temporary Street Patching

Temporary restoration of trenches shall be accomplished by using 2-inch Class B Asphalt Concrete Pavement when available or 2-inch medium-curing (MC-250) Liquid Asphalt (cold mix), U.P.M., 2-inch Asphalt Treated Base (ATB), or steel plates.

ATB used for temporary restoration may be dumped directly into the trench, bladed and rolled. After rolling, the trench must be filled flush with asphalt concrete pavement to

provide a smooth riding surface. Prior to beginning street trenching work, the contractor shall ensure that temporary patching material is stockpiled at the project site, both for completing and maintaining the temporary patching.

All temporary patches shall be maintained by the contractor and shall be made permanent within three (3) working days. Patches which are not properly maintained will be identified by the City and repaired by the City at the developer's/contractor's expense.

4.16 Trench Backfill and Restoration

Trench restoration shall be either by a patch or by patch plus overlay as required by the City.

4.16.1 All trench and pavement cuts shall be made by spade bladed jackhammer or saw cuts. The cuts shall be a minimum of 1-foot outside the trench width.

4.16.2 All trenching shall be backfilled with materials conforming to City of Centralia Standard Details. The trench shall be compacted to 95 percent maximum density.

No native backfill shall be used for trench backfill except in trench areas behind the back of the sidewalk. The native material would have to be approved for backfill by the City Engineer prior to use.

Backfill compaction shall be performed in compliance with WSDOT/APWA Standard Specifications.

Replacement of the asphalt concrete or Portland Cement Concrete pavement shall be to WSDOT/APWA Standard Specifications.

4.16.3 Tack shall be applied to the existing pavement and edge of cut and shall be emulsified asphalt grade CSS-1 as specified in Section 9-02.1(6) of the WSDOT/APWA Standard Specifications. Tack coat shall be applied as specified in Section 5-04 of the WSDOT/APWA Standard Specifications.

4.16.4 Asphalt concrete Class ½-inch PG64-22 shall be placed on the prepared surface by an approved paving machine and shall be in accordance with the applicable requirements of Section 5-04 of the WSDOT/APWA Standard Specifications, except that longitudinal joints between successive layers of asphalt concrete shall be displaced laterally a minimum of 12 inches unless otherwise approved by the City Engineer. Fine and coarse aggregate shall be in accordance with City of Centralia Standard Details. Asphalt concrete over 2 inches thick shall be placed in equal lifts not to exceed 3 inches each.

All street surfaces, walks or driveways within the street trenching areas affected by the trenching shall be feathered and shimmed to an extent that provides a smooth-riding connection and expeditious drainage flow for the newly paved surface. Shimming and feathering as required by the City Engineer shall be accomplished by raking out the oversized aggregates from the asphalt mix as appropriate.

Surface smoothness shall be per Section 5-04.3(13) of the WSDOT/APWA Standard Specifications. The paving shall be corrected by removal and repaving of the trench only.

4.16.5 All joints on trenching or overlays shall be sealed using rubberized asphalt as specified in the WSDOT/APWA Standard Specifications, Section 9-04.2 (AASHTO M173).

4.16.6 When trenching within the roadway, shoulder(s) shall be restored to original or better condition.

4.16.7 The final patch shall be completed as soon as possible and shall be completed within three (3) days after first opening the trench. This time frame may be adjusted if delays are due to inclement paving weather, or other adverse conditions that may exist. However, delaying of final patch or overlay work is allowable only subject to the City Engineer's approval. The City Engineer may deem it necessary to complete the work within the three (3) days time frame and not allow any time extension. If this occurs, the contractor shall perform the necessary work as directed by the City Engineer.

4.16.8 If the trench is parallel with the street then a minimum of one-half the street will be replaced with the cut at the centerline of the street. If any damage occurs beyond centerline then the entire width of the street shall be replaced for the length of the trench or to the limits of the damage.

4.16.9 The maximum number of trench cuts transverse to the street for one development shall be two. If in unusual circumstances additional are required then the entire street will be planed and paved full width for entire property frontage.

4.16.10 Any surfaces that are damaged due to construction activities must be replaced after construction is complete. Damage includes but is not limited to: Heavy trucks hauling materials to and from the site, equipment damaging roadways and/or sidewalks, etc.

4.17 Staking

All surveying and staking shall be performed by the design engineer or a licensed land surveyor. The engineer or surveyor directing such work shall be licensed by the State of Washington.

A pre-construction meeting shall be held with the City prior to commencing staking. All construction staking shall be inspected by the City prior to construction.

The minimum staking of streets shall be as follows:

1. Stake centerline alignment every 25 feet (50 feet in tangent sections) with cuts and/or fills to subgrade.

2. Stake top of ballast and top of crushed surfacing at centerline and edge of pavement every 25 feet.

3. Stake top back of curb at a consistent offset every 25 feet for vertical and horizontal alignment.

4. Staking shall be maintained throughout construction.

4.18 Testing

Testing shall be required at the developer's/contractor's expense. The testing shall be ordered by the developer or contractor and the chosen testing lab shall be approved by the City. Testing shall be done on all materials and construction as specified in the WSDOT/APWA Standard Specifications and with the frequency as specified herein.

In addition the City shall be notified before each phase of street construction commences (i.e., staking, grading, ballast, base, top course, and surfacing).

4.19 Traffic Control Devices

All traffic control devices shall conform to the MUTCD.

In new subdivisions, the developer shall provide and install all the required traffic control devices after final plat approval. The City will assume maintenance of the traffic control devices.

For private streets the street name signs shall have the words ″Private Street″ in one-inch letters below the street name sign.

4.20 Right-of-Way Deviations

The right-of-way and street widths required by these Guidelines may need to be modified to accommodate special situations not foreseen when the Guidelines were developed. These special circumstances could include but are not limited to physical features, environmental considerations or historical considerations. Typically deviations will be limited to areas already platted with substandard right-of-way widths. Any deviation from the guidelines shall be approved by the SPRC. The Committee will only consider deviation recommended by the City Engineer. If a developer wants to request consideration of a deviation a written request with support documentation of the special circumstance to the City Engineer. If a deviation is approved by the SPRC there shall be a written record made of the decision.

4.21 Roadway Section Deviations

The roadway sections required by these Guidelines may need to be modified to accommodate special conditions not foreseen when the Guidelines were developed. These special circumstances could include, but are not limited to, existing physical features, environmental considerations, historical considerations or stormwater treatment requirements. A deviation will not be considered if it is strictly for economic reasons.

If a developer would like to request a deviation from the standard roadway section required by these Guidelines, then the developer must make a written request to the City Engineer prior to submitting civil plans for review. The request from the developer shall include a drawing showing the proposed roadway section along with a written narrative outlining the conditions that make the standard section unworkable and how the proposed alternative will address the issues caused by using the standard section. Once the City Engineer receives the request for roadway section deviation, the City Engineer will review the request for completeness. After the City Engineer's review, the request will either be scheduled for review by the Site Plan Review Committee (SPRC) or returned to the developer for the correction. All requests for a deviation will be presented to the SPRC once the City Engineer indicates the deviation has sufficient information to make a decision.

Once the deviation request is deemed complete, the request will be scheduled for consideration at a SPRC meeting. The SPRC will hear the request and then make a decision. If the decision is to deny the request, it is final and the developer will have to proceed with the project using the appropriate standard roadway section. If the decision is to approve the request, then the developer will be allowed to proceed with the submittal of the civil plans for approval, using the alternative roadway section that was approved.

The roadway section deviation process outlined in this Section of the Guidelines is to modify the standard roadway sections. This process cannot be used to eliminate any of the requirements of the Guidelines. For example, this process cannot be used to try to eliminate

the requirement for a pedestrian facility. It could be used to change the location of where the walkway would be located or the construction requirements for the walkway.

CITY OF CENTRALIA
TESTING AND SAMPLING FREQUENCY GUIDE

ITEM	TYPE OF TESTS	MINIMUM NO.	FREQUENCY
GRAVEL BORROW	GRADING & SE	1 EACH	1 - 4000 TON
SAND DRAINAGE BLANKET	GRADING	1 EACH	1 - 4000 TON
CSTC	GRADING, SE & FRACTURE	1 EACH	1 - 2000 TON
CSBC	GRADING, SE & FRACTURE	1 EACH	1 - 2000 TON
BALLAST	GRADING, SE & DUST RATIO	1 EACH	1 - 2000 TON
BACKFILL/SAND DRAINS	GRADING	1 EACH	1 - 2000 TON
GRAVEL BACKFILL FOR:			
FOUNDATIONS	GRADING, SE & DUST RATIO	1 EACH	1 - 1000 TON
WALLS	GRADING, SE & DUST RATIO	1 EACH	1 - 1000 TON
PIPE BEDDING	GRADING, SE & DUST RATIO	1 EACH	1 - 1000 TON
DRAINS	GRADING	1 EACH	1 - 100 TON
PCC STRUCTURES: (Sidewalk, curb and gutter, foundations)			
COARSE AGGREGATE	GRADING	1 EACH	1 - 1000 TON
FINE AGGREGATE	GRADING	1 EACH	1 - 500 TON
CONSISTENCY	SLUMP	1 EACH	1 - 100 CY
AIR CONTENT	AIR	1 EACH	1 - 100 CY
CYLINDERS (28 DAY)	COMPRESSIVE STRENGTH	2 EACH	1 - 100 CY
CEMENT	CHEMICAL & PHYSICAL CERTIFICATION	1	1 - JOB
ASPHALT CEMENT CONCRETE:			
BLEND SAND	SE	1 EACH	1 - 1000 TON
MINERAL FILLER	S.G. & PI, CERTIFICATION	1	1 - JOB
COMPLETED MIX	FRACTURE, SE, GRADING, ASPHALT CONTENT	1 EACH	1 - 1000 TON
	COMPACTION	2 EACH	5 - 400 TON
ASPHALT TREATED BASE:			
COMPLETED MIX	SE, GRADING, ASPHALT CONTENT	1 EACH	1 - 1000 TON
	COMPACTION	1 EACH	5 - Control Lot*
ASPHALT MATERIALS	CERTIFICATION	1	1 - JOB
RUBBERIZED ASPHALT	CERTIFICATION	1	1 - JOB
COMPACTION TESTING:			
EMBANKMENT	COMPACTION	1 EACH	1 - 500 LF
CUT SECTION	COMPACTION	1 EACH	1 - 500 LF
CSTC	COMPACTION	1 EACH	1 - 500 LF
CSBC	COMPACTION	1 EACH	1 - 500 LF
BALLAST	COMPACTION	1 EACH	1 - 500 LF
TRENCH BACKFILL	COMPACTION	1 EACH	1 - 500 LF

SE = Sand Equivalency

* A control lot shall be a normal day's production. For minor quantities of 200 tons or less per day, a minimum of two (2) gauge readings shall be taken.

LIST OF DRAWINGS

CHAPTER 4: STREETS

CHAPTER 5
SIDEWALKS AND CURBS

5.01 Design Standards

Plans for the construction of sidewalks and curbs are to be submitted as part of the street plans when applicable.

The City has set forth minimum standards as outlined in Section 1.06 which must be met in the design and construction of sidewalks and curbs. Because these are minimum standards, they may be modified by the City Engineer, should the City Engineer feel circumstances require increased or decreased widths.

5.02 Sidewalks

Sidewalks shall be constructed of Commercial Concrete 4 inches thick. When the sidewalk and curb are contiguous the width of the sidewalk shall be measured from back of curb to back of sidewalk.

5.02.1 The design and construction of all sidewalks, curbs, and walkways shall meet the following minimum standards:

The width of sidewalks shall be as shown in the Street Design Standard Drawings. Those sidewalks designated in the Comprehensive Bike Plan of the City as bike paths shall, in addition, meet the minimum width requirements established for said bike paths. The City Engineer shall require that the design of all sidewalks provides for a gradual rather than an abrupt transition between sidewalks of different widths or alignments.

5.02.2 Form and subgrade inspection by the City are required before the sidewalk is poured.

5.02.3 Monolithic pour of curb and sidewalk will not be allowed.

5.02.4 For driveway requirements see Section 4.12.

5.03 Curb

Cement concrete curb shall be used for all street edges unless otherwise approved by the City Engineer. All curbs shall be constructed of Commercial Concrete as shown on the standard drawing except in driveway sections where Class 4000 concrete is required.

Extruded curb per WSDOT/APWA Standard Specifications is allowed.

Form and subgrade inspection by the City are required before curb and gutter are poured.

5.04 Curb Access Ramps

All sidewalks must be constructed to provide for access ramps in accordance with the ADA regulations. The ramps shall conform to City of Centralia Standard Details or WSDOT Standard Plans F-40.12-03 through F-45.10-02.

Curb access ramps shall be constructed of Commercial Concrete. Form and subgrade inspection by the City are required before the ramp is poured.

5.05 Staking

All surveying and staking shall be performed by a design engineer or licensed surveyor. The engineer or surveyor directing such work shall be licensed by the State of Washington.

A pre-construction meeting shall be held with the City prior to commencing staking. All construction staking shall be inspected by the City prior to construction.

The minimum staking of curb and sidewalk shall be as follows:

- Stake top back of curb at a consistent offset for vertical and horizontal alignment every 25 feet (50 feet in tangent sections).

Staking shall be maintained throughout construction.

5.06 Testing

Testing shall be required at the developer's/contractor's expense on all materials and construction as specified in the WSDOT/APWA Standards Specifications.

At a minimum, one (1) slump test and two (2) test cylinders shall be taken once a day. All other testing frequencies shall be as specified in the Testing and Sampling Table in Section 4.18.

In addition, the City shall be notified before each phase of sidewalk and curb construction commences.

LIST OF DRAWINGS

CHAPTER 5: SIDEWALKS AND CURBS

CHAPTER 6
SIGNALS

6.01 General

Signals shall be installed per the requirements set forth herein. This work shall consist of furnishing and installing a complete and functional traffic control system of controllers, signals, and appurtenances as required by the City.

6.02 Design Standards

Signal systems shall be designed in accordance with the specifications as set forth in the WSDOT Design Manual, the WSDOT/APWA Standard Specifications and the MUTCD. At specific locations, railroad preemption may be required.

All public signal designs shall be prepared by an engineering firm capable of performing such work. The engineer shall be licensed by the State of Washington. All applicable requirements set forth in Section 1.06 shall be included. Approval of plans and specifications shall be obtained before construction commences.

6.03 Induction Loops

Induction loops shall be constructed per WSDOT/APWA Standard Specification 8-20.3(14)C, WSDOT Standard Plan J-8a, and the following:

Loops shall not be cut into final lift of new asphalt.

Loops shall be preformed in crushed surfacing top course (CSTC) before paving or shall be cut in existing asphalt or leveling course to subbase before intersection is overlaid.

6.04 Staking

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington. Staking shall be maintained throughout construction.

A pre-construction meeting shall be held with the City prior to commencing staking. All construction staking shall be inspected by the City prior to construction.

CHAPTER 7
STREET LIGHTS

7.01 Design Standards

A street lighting plan submitted by the applicant and approved by the City Engineer shall be required for all street light installations. Type of installation shall be as set forth in WSDOT/APWA Standard Specifications and as directed by the City, except where noted herein.

Refer to the City of Centralia Street Light Construction General Notes for specific equipment and installation guidelines and procedures.

All public street light designs shall be prepared by an engineering firm capable of performing such work. The engineer shall be licensed by the State of Washington. All developments shall submit the lighting plan on a separate sheet. After the system is completed and approved, a set of "as-built" mylar drawings shall be submitted to the City as a permanent record. These shall be in accordance with all applicable Guideline requirements for plans and as-builts.

All street light electrical installations including wiring conduit and power connections shall be located underground.

The General Notes found in the Standard Detail Section shall be shown on any plans including street light installation in the public right-of-way.

7.02 Staking

All surveying and staking shall be performed by a design engineer or licensed surveyor capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington.

A pre-construction meeting shall be held with the City prior to commencing staking. All construction staking shall be inspected by the City prior to construction. Staking shall be maintained throughout construction.

The minimum staking of luminaires shall be as follows:

1. Location and elevation to the center of every pole base.
2. Location and elevation of each service disconnect.
3. Location and elevation of each J-box.

7.03 —Testing

All luminaires shall be subject to a L & I electrical inspection. Lamp, photocell and fixture shall be warranted for a period of one year.

LIST OF DRAWINGS

CHAPTER 7: STREET LIGHTS

The minimum staking of signals shall be as follows:

Location, with cut or fill to center of all pole bases;

Location of junction box;

Location of all corners of controller base;

Location of service disconnect;

Location of conduit crossings.

6.05 Testing

All signals shall be subject to any necessary electrical inspections as well as requirements as set forth in the WSDOT Design Manual and the WSDOT/APWA Standard Specifications.

A signal system shall not be approved or accepted by the City until the signal has performed correctly to the City's satisfaction for a 30-day "check-out" period as outlined below.

Controller and cabinet testing will be required at WSDOT District 3 laboratory and/or the City of Centralia. All specifications and material samples shall be submitted to the City for review and approval prior to installation. As-built signal drawings with all equipment types listed shall be submitted to the City prior to final acceptance.

6.06 Check-Out Procedure

The contractor shall call for an intersection check-out after completing the controller cabinet installation along with all other signal equipment complete with wiring connections. All parts and workmanship shall be warranted for one year from date of acceptance.

New signals shall operate without any type of failure for a period of 30 days. The contractor shall have technical personnel available to respond to system failure within 24 hours during the 30-day "check-out period.

Failure of any control equipment or hardware within the "check-out" period shall restart the 30-day "check-out" period.

CHAPTER 8
ROADSIDE FEATURES

8.01 General

Miscellaneous features included herein shall be developed and constructed to encourage the uniform development and use of roadside features wherever possible.

8.02 Design Standards

The design and placement of roadside features noted in this Chapter shall adhere to the specific requirements as listed for each feature, and, where applicable, to the appropriate standards as set forth in Sections 1.02 and 1.06.

8.03 Staking

All surveying and staking shall be performed by the design engineer or a licensed surveyor capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington. Staking shall be maintained throughout construction.

A pre-construction meeting shall be held with the City prior to commencing staking. All construction shall be inspected by the City prior to construction.

8.04 Testing

Testing shall be required at the developer's/contractor's expense on all materials and construction as specified in the WSDOT/APWA Specifications and with a frequency as specified in the WSDOT Construction Manual and in these Guidelines.

8.05 Survey Monuments

8.05.1 All existing survey control monuments which are disturbed, lost, or destroyed during surveying or construction shall be replaced with the proper monument as outlined below by a land surveyor registered in the State of Washington at the expense of the responsible developer/contractor.

8.05.2 The monument installation shall be as shown on the standard drawings.

8.05.3 Required monument locations: Appropriate monuments shall be placed:

At all street intersections;

At the PC and PT's of all horizontal curves;

At PI of all horizontal curves of streets where the PI lies within the limits of the traveled roadway;

At all corners, control points and angle points around the perimeter of subdivisions as required by the City.

At all corners, quarter corners, and sixteenth corners that fall within the right-of-way.

8.05.4 The monument case shall be installed after the final course of surfacing has been placed.

8.06 Bus Shelters

Bus shelter installation is encouraged by the City throughout its service area. Details and placement shall be the developer's responsibility to work out with Twin Transit, which shall own and maintain the shelters. The City shall be included in the review process, particularly where there are traffic and right-of-way issues.

8.07 Mailboxes

During construction, existing mailboxes shall be accessible for the delivery of mail or, if necessary, moved to a temporary location. Temporary location shall be coordinated with the U.S. Postal Service. The mailboxes shall be reinstalled at the original location or, if construction has made it impossible, to a location as outlined below and approved by the U.S. Postal Service.

Location of mailboxes shall be as follows:

Bottom or base of box shall be 36 to 42 inches above the road surface.

Front of mailbox 18 inches behind vertical curb face or outside edge of shoulder.

New developments: clustered mailboxes are required. Contact the U.S. Postal Service for details.

Mailboxes shall be set on posts strong enough to give firm support but not to exceed 4 x 4-inch wood or one 1.5-inch diameter pipe, or material and design with comparable breakaway characteristics.

8.08 Guard Rails

For purposes of design and location, all guard rails along roadways shall conform to the criteria of the WSDOT Design Manual, current edition.

8.09 Retaining Walls

8.09.1 Rock walls may be used for erosion protection of cut or fill embankments up to a maximum height of 8 feet in stable soil conditions, which will result in no significant foundation settlement or outward thrust upon the walls. For heights over 4 feet or when soil is unstable, a structural wall of acceptable design stamped by a licensed engineer shall be used.

Any rock wall over 30 inches high in a fill section shall require an engineered design by a licensed engineer. The engineer shall continuously inspect the installation of the wall as it progresses and shall submit to the City inspection reports, including compaction test results and photographs taken during the construction, documenting the techniques used and the degree of conformance to the structural engineer's design.

The engineered wall detail must be submitted to the City Engineering Department for approval prior to installation.

8.09.2 The rock material shall be as nearly rectangular as possible. No stone shall be used which does not extend through the wall. The rock material shall be hard, sound, durable, and free from weathered portions, seams, cracks, and other defects. The rock density shall be a minimum of 160 pounds per cubic foot.

8.09.3 The rock wall shall be started by excavating a trench having a depth below subgrade of one-half the base course or one foot, whichever is greater.

8.09.4 Rock selection and placement shall be such that there will be minimum voids and, in the exposed face, no open voids over 6 inches across in any direction. The final course shall have a continuous appearance and shall be placed to minimize erosion of the backfill material. The larger rocks shall be placed at the base of the rockery so that the wall will be stable and have a stable appearance. The rocks shall be placed in a manner such that the longitudinal axis of the rock shall be at right angles or perpendicular to the rockery face. The rocks shall have all inclining faces sloping to the back of the rockery. Each course of rocks shall be seated as tightly and evenly as

possible on the course beneath. After setting each course of rock, all voids between the rocks shall be chinked on the back with quarry rock to eliminate any void sufficient to pass a 2-inch square probe.

8.09.5 The wall backfill shall consist of quarry spalls with a maximum size of 6 inches and a minimum size of 4 inches or as specified by the licensed engineer. This material shall be placed to a 12-inch minimum thickness between the entire wall and the cut or fill material. The backfill material shall be placed in lifts to an elevation approximately 6 inches below the top of each course of rocks as they are placed, until the uppermost course is placed. Any backfill material on the bearing surface of one rock course shall be removed before setting the next course.

8.09.6 Perforated drainage pipe and filter fabric shall be installed at the back of the wall. This pipe requirement may be waived by the City Engineer upon demonstration by the developer that no subsurface water problem exists.

8.10 Parking Lots

A parking lot construction permit is required prior to surfacing any unsurfaced designated parking area.

Storm water retention/detention shall be provided and shall follow the criteria as set forth in Chapter 9 of these Guidelines.

Four sets of plans and specifications shall be required to be submitted for review and approval by the City with respect to storm drainage discharge and on site retention or detention, matching street and/or sidewalk grades, access locations, parking layout, and to check for future street improvement conformity and City zoning regulations.

Parking lot surfacing materials shall satisfy the requirement for a permanent all-weather surface. Asphalt concrete pavement and cement concrete pavement satisfy this requirement and are approved materials. Gravel surfaces are not acceptable or approved surface material types. Combination grass/paving systems are approved surface material types. However, their use requires submittal of an overall parking lot paving plan showing the limits of the grass/paving systems and a description of how the systems will be irrigated and maintained. If the City determines the grass/paving system is not appropriate for the specific application, alternate approved surfacing materials shall be used.

Minimum requirements for parking lot capacity shall be determined by the City Zoning Ordinance.

8.11 Bikeways

Bikeway or Urban Trail construction is required in conjunction with any new development or redevelopment where the estimated cost of improvements on such properties exceeds 25 percent of the value of the existing structures, or plat or short plat approval, when the need for such a bikeway is indicated in the Centralia Comprehensive Plan and/or Centralia Parks and Recreation Master Plan.

8.11.1 Design Standards

The design of bicycle paths shall depend upon their type and usage. Bikeway surfacing shall be as described in Section 4.16. All minimum design standards as set forth in Section 1.06 shall apply.

The minimum design standards for bikeways shall be as defined in the WSDOT Design Manual, Section 1020, Facilities for Nonmotorized Transportation.

Normally, bikeways are shared with other transportation modes, although they may be provided exclusively for bicycle use. Bikeways are categorizes as follows:

Class I, Bike Path: A separate facility for use principally by bicyclists, but may be shared with pedestrians. These facilities are separated from motor vehicle roadways.

Class II, Bike Lane: A portion of the motor vehicle roadway that is designated by signs and pavement markings for bicycle use. These facilities are adjacent to the motor vehicle roadway.

Class III, Bike Route: A street that is designated with signs as a bicycle route, where bicycle usage is shared with motor vehicles on the street or, less desirably, with pedestrians on a sidewalk or walkway. Where bicycle usage is shared with motor vehicles, the curb lane width will be increased to 14 feet.

Class IV, Shared Roadway: An unsigned facility within commercial and high-density urban centers where sidewalk bicycling is not permitted. No special designations or design criteria are directed toward bicycle use.

Class I, II, III, or IV Bikeways, as appropriate, shall be provided:

Wherever called for in the Centralia Comprehensive Plan and/or the Centralia Parks and Recreation Master Plan, or

When traffic analysis or traffic planning indicates substantial bicycle usage which would benefit from a designated bicycle facility as determined by the City, except where noted herein.

8.11.2 Staking and Testing

Staking and testing shall be done in accordance with street staking and testing as outlined in Sections 4.19 and 4.20.

CHAPTER 9
STORM DRAINAGE

9.01 General

The standards established by this chapter are intended to represent the minimum standards for the design and construction of storm drainage facilities.

9.02 Design Standards

The design of storm drainage, retention, and detention systems shall be completed as outlined in the 2012 version of the Department of Ecology Stormwater Management Manual for Western Washington as modified in 2014, the Washington State Department of Transportation Hydraulics Manual and this Chapter. All recommendations set forth in the Stormwater Management Manual for Western Washington shall be considered minimum requirements for the design of stormwater facilities in the City of Centralia unless otherwise detailed in this Chapter.

Minimum Requirements for New Development and Redevelopment

This section outlines the nine (9) minimum requirements for stormwater management applicable to new development and redevelopment sites as detailed in the Department of Ecology Stormwater Management Manual for Western Washington (SWMMWW) Volume 1, Chapter 2. The nine (9) minimum requirements are:

1. Preparation of Stormwater Site Plans
2. Construction Stormwater Pollution Prevention
3. Source Control of Pollution
4. Preservation of Natural Drainage Systems and Outfalls
5. On-site Stormwater Management
6. Runoff Treatment
7. Flow Control
8. Wetlands Protection
9. Operation and Maintenance

Depending on the type and size of the proposed project, different combinations of the requirements listed above will apply. The appropriate City of Centralia Stormwater Review Worksheet for your site shall be followed to determine which requirements will need to be met.

Storm Drainage

Stormwater management falls into one of three categories for review:

1. General Stormwater Plan Review – Projects over 5,000 square feet of new and/or replaced impervious surfaces.

2. Small Site Stormwater Plan Review – Projects with 2,000 to 4,999 square feet of new and/or replaced surfaces and all single family residential sites.

3. Minor Project construction Stormwater Review – Projects less than 2,000 square feet of new and/or replaced impervious surfaces.

Applicants for development must fill out the appropriate Stormwater Review Worksheet and complete the requirements detailed in the worksheet and in this Chapter as applicable to the project. The completed Stormwater Review Worksheet, along with the Stormwater Plan Review Fee, must be submitted for review and approval.

9-02.1 Minimum Requirement #1: Preparation of Stormwater Site Plans

All projects meeting the thresholds in Volume 1 Section 2.4 of the SWMMWW shall prepare a Stormwater Site Plan for review. Stormwater Site Plans shall use site-appropriate development principles to retain native vegetation and minimize impervious surfaces to the extent feasible. Stormwater Site Plans shall be prepared in accordance with Volume 1 Chapter 3.

9-02.2 Minimum Requirement #2: Construction Stormwater Pollution Prevention (SWPP)

All new development and redevelopment projects with land alteration activities are responsible for preventing erosion and discharge of sediment and other pollutants into receiving waters.

Land alteration activities are those activities which are commonly referred to as clearing (the act of vegetation removal from the land surface); grubbing (the act of root vegetation removal from beneath the surface of the earth); excavation (the mechanical removal of earth material); filling (deposition of earth material placed by artificial means); grading; and stockpiling.

9-02.2-A Small Site Stormwater Pollution Prevention

A small site project is defined as a one-lot single-family home or other construction project that adds or replaces less than 2,000 square feet of impervious surface or clears less than 7,000 square feet of land.

The applicant developing a small site shall submit a City of Centralia Small Site Stormwater Review Worksheet and a site improvement and drainage plan on 8½″ x 11″ or 11″ x 17″ paper showing the following:

- Name, address, and phone number of owner or contact person;
- North arrow, lot number and plat, address, date, and street name fronting structure;
- Footprint of all proposed structures and any existing structures on the site;
- Location of any environmentally sensitive areas on or immediately adjacent to the site, including streams, wetlands, steep slopes, and their required buffers;
- Arrows or topographical contours showing the slope of the site;
- Methods to convey runoff away from the proposed structures or construction activity;
- Proposed location and erosion protection of excavated soil stockpiles (if applicable);
- BMPs used to stabilize disturbed areas of the site and to protect adjacent properties and/or streets from sediment (these methods may include plastic covering, mulching, seeding, planting, sodding, vegetative buffer strips, sediment barriers or filter fences, and dikes);
- A construction vehicle access;
- A note calling for periodic street cleaning to remove any sediment tracked off the site;
- A note calling for routine inspection and maintenance of all installed erosion and sediment control BMPs, especially after storms;
- A note calling for appropriate measures to be taken to stop sediments from entering waterways if the proposed BMPs fail.

9.02.2B Large Parcel Stormwater Pollution Prevention Plans (SWPPP)

An applicant proposing a development that is not a single family residence, adds or replaces 2,000 square feet or more of impervious surface or clears more than 7,000 square feet must submit a City of

Centralia General Stormwater Review worksheet with all required attachments as detailed on the worksheet.

The SWPPP submitted must have a narrative as well as drawings and details. The Construction SWPPP must be a stand alone document and must be located on the construction site at all times.

As site work progresses, the plan must be modified to reflect changing site conditions. The owner of lessee of the land being developed has the responsibility for Construction SWPPP preparation and submission to the City of Centralia for review and approval prior to construction. The owner or lessee may designate someone (i.e., an engineer architect, contractor, etc.) to prepare the Construction SWPPP, but he/she retains ultimate responsibility.

The Construction SWPPP narrative must contain concise information about existing site conditions, construction schedules, maintenance plan and other pertinent items that are not contained on the drawings. The narrative shall address the thirteen (13) elements as detailed in the SWMMWW Volume 2 Section 3.2. The narrative shall be site-specific and list specific BMPs that will be used to address each element.

The drawings and notes describe where and when the various BMPs will be installed, the performance that the BMPs are expected to achieve, and actions to be taken if the performance goals are not achieved. Specific details for each BMP that will be used as part of the project shall be included on the drawings.

Sites with a disturbed area equal to or greater than 1 acre must also apply for a Construction General Stormwater Permit from the Department of Ecology. This permit must be active before construction approval will be given by the City.

9-02.3 Minimum Requirement #3: Source Control of Pollution

All known, available and reasonable source control BMPs must be applied to all projects. Source control BMPs must be selected, designed and maintained in accordance with the SWMMWW. Source Control BMPs include Operational BMPs and Structural Source Control BMPs. See SWMMWW Volume IV for design details of these BMPs. For construction sites see Volume II Chapter 4.

9-02.4 Minimum Requirement #4: Preservation of Natural Drainage Systems and Outfalls

Natural Drainage patterns shall be maintained, and discharges from the project site shall occur at the natural location, to the maximum extent possible. The manner by which runoff is discharged from the project site must not cause an adverse impact to the downstream receiving waters and downgradient properties. All outfalls require energy dissipation.

9-02.5 Minimum Requirement #5: On-site Stormwater Management

All projects shall employ On-site Stormwater Management BMPs in accordance with the following project thresholds, standards, and lists to infiltrate, disperse, and retain stormwater runoff on-site to the extent feasible without causing flooding or erosion impacts.

Projects qualifying as flow control exempt in accordance with Volume 1 Section 2.5.7 of the SWMMWW do not have to achieve the LID performance standard, nor consider bioretention, rain gardens, permeable pavement, and full dispersion if using List #1 or List #2. However, those projects must implement BMP T5.13; BMPs T5.10A, B or C; and BMP T5.11 or T5.12 if feasible.

PROJECT THRESHOLDS

Projects triggering only Minimum Requirements #1 through #5 shall either:

a. Use On-site Stormwater Management BMPs from List #1 for all surfaces within each type of surface in List #1; or

b. Demonstrate compliance with the LID Performance Standard. Projects selecting this option cannot use Rain Gardens. They may choose to use Bioretention BMPs as described in Volume 5 Chapter 7 to achieve the LID Performance Standard.

Projects triggering Minimum Requirements #1 through #9 must meet the requirements in Table 2.5.1.

Table 2.5.1 On-site Stormwater Management Requirements for Projects Triggering Minimum Requirements #1 through #9	
Project Type and Location	**Requirement**
New development on any parcel inside the UGA, or new development outside the UGA on a parcel less than 5 acres	Low Impact Development Performance Standard and BMP T5.13; or List #2 (applicant option)
New development outside the UGA on a parcel of 5 acres or larger	Low Impact Development Performance Standard and BMP T5.13.
Redevelopment on any parcel inside the UGA, or redevelopment outside the UGA on a parcel less than 5 acres	Low Impact Development Performance Standard and BMP T5.13; or List #2 (applicant option)
Redevelopment outside the UGA on a parcel of 5 acres or larger	Low Impact Development Performance Standard and BMP T5.13

Low Impact Development Performance Standard

Stormwater discharges shall match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 8% of the 2-year peak flow to 50% of the 2-year peak flow. Refer to the Standard Flow Control Requirement section in Minimum Requirement #7 for information about the assignment of the pre-developed condition. Project sites that must also meet minimum requirement #7 – Flow Control – must match flow durations between 8% of the 2-year flow through the full 50-year flow.

For list #1 and list #2 below, for each surface, consider the BMPs in the order listed for that type of surface. Use the first BMP that is considered feasible. No other On-site Stormwater Management BMP is necessary for that surface. Feasibility shall be determined by evaluation against:

1. Design criteria, limitations, and infeasibility criteria identified for each BMP in the SWMMWW; and
2. Competing Needs Criteria listed in Chapter 5 of Volume V of the SWMMWW.

List #1: On-site Stormwater Management BMPs for Projects Triggering Minimum Requirements #1 through #5 only (From Section 2.5.5 Volume 1 SWMMWW)

Lawn and Landscape Areas:

1. Post-Construction Soil Quality and Depth in accordance with BMP T5.13 in Chapter 5 Volume V.

Roofs:

1. Full Dispersion in accordance with BMP T5.30 in Chapter 5 Volume V or Downspout Full Infiltration Systems in accordance with BMP T5.10A in Section 3.1.1 in Chapter 3 of Volume III.
2. Rain Gardens in accordance with BMP T5.14 in Chapter 5 of Volume V, or Bioretention in accordance with Chapter 7 of Volume V. The rain garden or bioretention facility must have a minimum horizontal projected surface area below the overflow which is at least 5% of the area draining to it.
3. Downspout Dispersion Systems in accordance with BMP T5.10B in Section 3.1.2 in Chapter 3 of Volume III.
4. Perforated Stub-out Connections in accordance with BMP T5.10C in Section 3.1.3 in Chapter 3 of Volume III.

Other Hard Surfaces:

1. Full Dispersion in accordance with BMP T5.30 in Chapter 5 of Volume V
2. Permeable pavement in accordance with BMP T5.15 in Chapter 5 of Volume V, or Rain Gardens in accordance with BMP T5.14 in Chapter 5 of Volume V, or Bioretention in accordance with Chapter 7 of Volume V. The rain garden or bioretention facility must have a minimum horizontal projected surface area below the overflow which is at least 5% of the area draining to it.
3. Sheet Flow Dispersion in accordance with BMP T5.12, or Concentrated Flow Dispersion in accordance with BMP T5.11 in Chapter 5 of Volume V.

List #2: On-site Stormwater Management BMPs for Projects Triggering Minimum Requirements #1 through #9 (From Section 2.5.5 Volume 1 SWMMWW)

Lawn and Landscape Areas:

1. Post-Construction Soil Quality and Depth in accordance with BMP T5.13 in Chapter 5 Volume V.

Roofs:

1. Full Dispersion in accordance with BMP T5.30 in Chapter 5 Volume V or Downspout Full Infiltration Systems in accordance with BMP T5.10A in Section 3.1.1 in Chapter 3 of Volume III.
2. Bioretention (See Chapter 7 Volume V) facilities that have a minimum horizontal projected surface area below the overflow which is at least 5% of the area draining to it.
3. Downspout Dispersion Systems in accordance with BMP T5.10B in Section 3.1.2 in Chapter 3 of Volume III.
4. Perforated Stub-out Connections in accordance with BMP T5.10C in Section 3.1.3 in Chapter 3 of Volume III.

Other Hard Surfaces:

1. Full Dispersion in accordance with BMP T5.30 in Chapter 5 of Volume V
2. Permeable pavement in accordance with BMP T5.15 in Chapter 5 of Volume V
3. Bioretention BMPs (See Chapter 7 of Volume V) that have a minimum horizontal projected surface area below the overflow which is at least 5% of the area draining to it.
4. Sheet Flow Dispersion in accordance with BMP T5.12, or Concentrated Flow Dispersion in accordance with BMP T5.11 in Chapter 5 of Volume V.

9-02.5 Minimum Requirement #6: Runoff Treatment

The following require construction of stormwater treatment facilities:

- Projects in which the total of pollution-generating hard surfaces (PGHS) is 5,000 square feet or more in a threshold discharge area of the project, or
- Projects in which the total of pollution-generating pervious surfaces (PGPS) (not including permeable pavements) is three quarters of an acre or more in a threshold discharge area, and from which there will be a surface discharge in a natural or man-made conveyance system from the site.
-

See Section 2.5.6 of Volume I of the SWMMWW for treatment facility volume and flow rate criteria.

Stormwater treatment facilities shall be:

- Selected in accordance with the process identified in Chapter 4 of Volume I and Chapter 2 of Volume V,
- Designed in accordance with the design criteria in Volume V, and
- Maintained in accordance with the maintenance schedule in Volume V.

Direct discharge of untreated stormwater from pollution-generating hard surfaces to ground water is prohibited, except for the discharge achieved by infiltration or dispersion of runoff through use of On-site Stormwater Management BMPs in accordance with Chapter 5 Volume V and Chapter 7 Volume V; or by infiltration through soils meeting the soil suitability criteria in Chapter 3 Volume III.

9-02.7 Minimum Requirement #7: Flow Control

Projects must provide flow control to reduce the impacts of stormwater runoff from hard surfaces and land cover conversions. The requirements in Section 2.5.7 of Volume I applies to projects that discharge stormwater directly, or indirectly through a conveyance system into a fresh waterbody.

The following circumstances require achievement of the standard flow control requirements for western Washington:

- Projects in which the total effective impervious surfaces is 10,000 square feet or more in a threshold discharge area, or
- Projects that convert ¾ acres or more of vegetation to lawn or landscape, or convert 2.5 acres or more of native vegetation to pasture in a threshold discharge area, and from which there is a surface discharge in a natural or man-made conveyance system from the site, or
- Projects that through a combination of effective hard surfaces and converted vegetation areas causes a 0.10 cubic feet per second increase in the 100-year flow frequency from a threshold discharge area as estimated using the Western Washington Hydrology Model or other approved model and one-hour time steps (or a 0.15 cfs increase using 15-minute time steps).

If a discharge is to a stream that leads to a wetland, or to a wetland that has an outfall to a stream, both this requirement and Minimum Requirement #8 apply.

9-02.8 Minimum Requirement #8: Wetlands Protection

The requirements of Section 2.5.8 apply only to projects whose stormwater discharges into a wetland, either directly or indirectly through a conveyance system.

9-02.9 Minimum Requirement #9: Operation and Maintenance

An operation and maintenance manual that is site specific and consistent with the provisions in Volume V shall be provided for proposed stormwater facilities and BMPs. The party responsible for maintenance and operation shall be identified in the manual. A copy of the operation and maintenance manual shall be retained on-site or within reasonable access to the site and shall be transferred with the property to the new owner.

A stormwater maintenance agreement must be signed by the property owner prior to construction approval. Once construction has been complete, the final document must be recorded at the Lewis County Auditor's Office before occupancy will be given. The agreement template may be obtained by contacting the Engineering Department.

Inspection reports shall be maintained on-site with the operation and maintenance manual and be provided for review by the City when requested.

9-02.10 Optional Guidance

Insert Text.

9-02.11 Exceptions to the Minimum Requirements

Insert Text

9-03 Vehicle and Equipment Washwater Discharge

All businesses that regularly wash vehicles and/or equipment surfaces shall conform to the requirements of the Best Management Practices Manual for Vehicle and Equipment Washwater Discharges and the 2012 Stormwater Management Manual for Western Washington prepared by Ecology. These requirements will also apply to farm/construction vehicles, equipment rinsing, mobile washers, new/used car dealerships, and charity car washes.

9-03.1 Businesses that are specifically a ″Car Wash″, shall be designed for zero (0) discharge to the public sanitary sewer system. These businesses shall be required to install a flow meter on the discharge line connecting to the City's sanitary sewer system.

9.04 Department of Ecology Stormwater Permits

All projects that have land disturbing activities totaling one-acre or more are required to apply for a Department of Ecology Construction General Stormwater Permit. Total land disturbing activities must include the cumulative acreage of the entire project whether in a single or in a multiphase project. This applies even if you are responsible for only a small portion (less than one-acre) of the larger project planned over time.

The Construction General Stormwater Permit Application must be filled out and submitted to the Department of Ecology along with any required permit fees. The application can be obtained by contacting the Department of Ecology. The application is also available on their website at: www.ecy.wa.gov/programs/wq/stormwater/construction

Proof of this permit must be submitted to the City of Centralia Engineering Department before construction plans will be approved.

Exceptions to this requirement are only allowed with written approval submitted to the City from the Department of Ecology.

9.05 Conveyance

Storm drain pipe within a public right-of-way or easement shall be sized to carry the maximum anticipated runoff from the possible contributing area.

The minimum main size shall be 12 inches in diameter. Lateral lines may be 8 inches in diameter. Minimum culvert size shall be 12 inches in diameter. Nothing shall preclude the City from requiring the installation of larger sized main if the City determines a larger size is needed to serve adjacent areas or for future service.

9.06 Pipe Types

Pipe material, joints, and protective treatment shall conform to the requirements set forth in Section 9-05 of the WSDOT/APWA Standards Specifications and this Chapter. The following pipe materials are allowed for use in pipe systems in the City of Centralia:

Reinforced concrete pipe;

Ductile iron pipe;

PVC pipe (SDR35, ASTM D3034 with 3 feet of cover outside pavement areas and 2 feet of cover under pavement areas, minimum);

Corrugated high density polyethylene pipe, (HDPE) dual wall with smooth interior with 3 feet of cover outside pavement areas and 2 feet of cover under pavement areas, minimum).

Coupling bands shall be of the same material as the pipe.

Materials for concrete, rubber gaskets, metal castings, reinforcing steel, and masonry units shall meet the requirements of appropriate sections of the WSDOT/APWA Standard Specifications.

The City encourages the use of open vegetated channels to convey stormwater runoff where possible. Any open channels proposed within public right-of-way shall require approval from the City Engineer and be constructed to the standards of a biofiltration swale.

9.07 Catch Basins

Maximum catch basin spacing will be 300 feet on arterials and collectors and 500 feet on all other street classifications. No surface water will cross any roadway to private property without the approval of the City Engineer. Catch basins shall conform to Standard Plans 9-01 and 9-02.

Catch basins that discharge to an existing system that does not have stormwater treatment shall have a 90 degree elbow installed in the outlet end.

9.08 Staking

All surveying and staking shall be performed by the design engineer or a licensed surveyor capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington. Staking shall be maintained during construction.

A pre-construction meeting shall be held with the City prior to commencing staking. All construction staking shall be inspected by the City prior to construction.

The minimum staking of storm sewer systems shall be as follows:

Stake centerline alignment every 25 feet with cuts and/or fills to bottom of trench.

Stake location of all catch basins, manholes, and other fixtures for grade and alignment.

Stake location, size and depth of retention or detention facility.

Stake finished grade of each catch basin/manhole rim elevation and invert elevations of all pipes in catch basins, manholes, and those that daylight.

9.09 Trench Excavation

See Guidelines Section 2.16 for requirements regarding trench excavation.

9.10 Backfilling

See Guidelines Section 2.18 for requirements regarding backfilling.

9.11 Street Patching and Restoration

See Guidelines Section 4.16, 4.17, and 4.18 for requirements regarding street patching and restoration.

9.12 Required Notes for Storm Drainage Plans

The Storm Drainage Installation General Notes must be shown on the plans.

LIST OF DRAWINGS

CHAPTER 9: STORM DRAINAGE

CHAPTER 10
SMALL WIRELESS COMMUNICATION FACILITIES

10.01 Design Standards

The items herein contained are the Small Wireless Communication Facilities Installation Standards, Conditions, and Specifications for the City of Centralia. These are minimum installation requirements only and may be revised at the discretion of the City, but in no event shall said standards be reduced below current local, state, federal requirements and standard specifications that are referenced in this document.

Centralia street lighting and power facilities are owned and operated by the City of Centralia. The only authorized personnel to operate City electrical facilities are City personnel unless otherwise approved. Applicants and their contractors may only access City facilities with written approval through the application process for installation of small cell wireless facilities. Unauthorized use of City facilities will invalidate any approval for small cell wireless facilities at that location and unauthorized equipment will be removed at the applicant's expense.

"Wireless Equipment" shall be defined as any and all equipment required to operate a wireless communication system and shall include, but not be limited to, antenna, panels, disconnect and all associated appurtenances.

"Applicant" shall be defined as the person requesting to install wireless equipment within Centralia city limits, on City Owned Property, easements or Right of Way, and shall be the owner of all such equipment.

After the system is completed, installed and approved, a hard copy and digital set of "as-built" drawings shall be submitted to the City Engineer as a permanent record. These shall be in accordance with all applicable Guideline requirements for plans and as-builts.

These standards shall be used in conjunction with the City of Centralia Municipal Code Section 14.32 and the Small Cell Wireless Facilities Standard Details found at the end of this Section.

The Standards Specifications for this Section shall be The National Electric Safety Code (NESC), National Electric Code (NEC), the Revised Code of Washington (RCW), Washington Administrative Code (WAC), City of Centralia Municipal Code Section 14.32 and the City of Centralia Design and Development Guidelines. In the event of conflicting standards the higher standard shall control. Only one small wireless facility per owner shall be allowed per pole. Installation shall not be allowed on poles where adequate clearance is not available.

All work above the communication worker safety zone, as defined in NESC, shall be performed by Centralia City Light crew or Qualified Electrical Employee per definition in WAC 296-45. Contractor must be approved by the City of Centralia. Any variance from this standard shall require approval in writing from the City of Centralia.

10.02 Codes, Permits and Approvals

1. All necessary permits shall be obtained by the applicant. This includes the City of Centralia Small Wireless Communication Facility Permit, Franchise Agreement, Street Light Attachment Lease, City Light Commercial New Service Agreement, Right of Way Permit and L & I electrical permit.

2. The applicant must have a completed City of Centralia Franchise agreement accepted by the Centralia City Council before submitting an application to install a wireless device.

3. All easements on private property for pad-mounted communication equipment, down guys, aerial overhangs, services, etc. shall be obtained by the applicant and provided to the City prior to construction approval.

4. Permits and applications for all proposed work, which includes installations, modification, or relocations shall be reviewed and approved by the City of Centralia.

5. All installation shall meet or exceed any applicable structural and clearance requirements of the latest revision of the NESC, NEC, WAC, Centralia Municipal Code 14.32 and all Centralia Design and Development Guidelines. In case of conflict, the most stringent requirement will prevail. This may result in pole replacement to accommodate the installation of the added antenna and its associated equipment. All costs for pole replacement, due to wireless equipment installation, shall be the responsibility of the applicant.

6. Where equipment is being attached to existing street light poles, a complete pole loading analysis indicating all new and existing loads shall be provided. Pole loading analysis to be stamped by a professional engineer licensed in the State of Washington.

7. A Non-Ionizing Electromagnetic Radiation (NIER) report shall be submitted to the City of Centralia and retained on file for each equipment type/model. The NIER report shall be endorsed by a Radio Frequency (RF) Professional Engineer (PE) who is licensed in the state of Washington. The NIER report shall specify minimum approach distances to the general public (uncontrolled) as well as to the electrical and communication workers potentially working in a RF environment (controlled) when accessing the pole by climbing or by aerial lift.

8. If top of Antenna is above 36 feet, the design must be approved by the City of Centralia Public Works Director and City Light General Manager or their designee.

9. If equipment is installed without proper approval and does not meet the requirements specified in this document, then the applicant shall be required to correct or remove such violations at their expense within 90 days of written notification from the City of Centralia, or it will be removed by the City at the applicant's expense.

10. These standards are subject to change at any time by the City of Centralia. The applicant must refer to and reference the most recent revision of this Standard at the Time and Date the Small Wireless Communication Facility Permit Application is signed.

10-03 Electrical Service Voltage and Connection

1. The Applicant must fill out the service voltage requirements for the wireless equipment on the City Light New Commercial Service Agreement and turn in with the Small Wireless Communication Facility Permit Application.

2. All costs associated with New Service requirements will be paid for by the applicant.

3. Power to serve the wireless equipment shall be metered and installed in accordance with Centralia City Light standards.

4. An external disconnect switch shall be required per Federal Communication Commission (FCC) Office of Engineering Technology (OET) Bulletin 65; Washington Administrated Code (WAC) 296-62-09005 to allow the antenna to be de-energized before work can be performed within the area designated by the RF warning signs. The service disconnect switch shall isolate all electric services as required to completely de-energize the equipment and antennas, including backup power or batteries. The service disconnect switch shall be either mounted to the communication equipment enclosure or just below it and be clearly identified.

10-04 Construction Requirements

1. All equipment and appurtenances shall be installed in accordance with the requirements of the standard specification called out in this Chapter. (NESC, NEC, WAC, etc.) All trenching in the Right of Way and all restoration shall be in accordance with the City of Centralia Development Guidelines and Standard Plans.

2. All risers shall comply with the City of Centralia standards and the table shown below except that the conduit shall match the color of the poles attached to when standard gray street light poles are not used.

Purpose	Type	Minimum Size (in.)	Maximum Size (in.)	Max. Total Qty. on Pole
120/240 V power supply conductors	Sch. 40 PVC, gray	2.5	2.5	2
First 10' of riser for the 120/240 V power supply conductors if fed from UG service	Sch. 80 PVC, gray	2.5	2.5	2
Antenna equipment cables	Sch. 40 PVC, gray	1-1/4	4	2

3. For pole top installations on poles, the riser orientation shall be on the field side, away from traffic flow.

4. All conduit shall be installed on standoff brackets.

5. The minimum space between the pole and the closest part of the conduit shall be 4.5 inches.

6. Stand-off brackets for conduit, at the base of the pole, shall be installed at a minimum of 8 feet from ground level.

7. Specific material for mounting equipment shall meet or exceed the quality standards provided in this document.

8. All equipment mounted on the ground or poles shall be painted a color that fits its current surroundings. Color shall be approved by the City prior to installation.

9. All newly installed Street Light Poles must meet the Standard Specification as specified in this document and various design criteria prior to installation. Approved Street Light Pole dimensions may vary and are on a case-by-case basis depending on exact location of small wireless facility device.

10. If it is determined that the existing street light pole is not adequate for the newly installed wireless equipment, the pole shall be replaced as required. All costs for installing the new pole shall be paid for by the applicant.

11. All Existing or New Street Light Poles and bases must be certified by the manufacturer or professional engineer, licensed with the state of Washington, to support any existing equipment and the weight of the additional wireless equipment shall be designed per requirements of the climate and seismic zoning for the City of Centralia. Certified test reports and stamped documents must be submitted with the application.

12. When installing wireless equipment on a new Street Light Pole, the Street Light Pole must be provided with either a Dual or Tri Chamber compartment as shown in the Standard Plans and Details. Alternatives from the Dual or Tri Chamber compartment may be approved by the City on a case by case basis, as long as the installation meets all NEC and NESC requirements around separation of jurisdictions.

13. No Wireless equipment shall be installed on City Owned Downtown Decorative Style Street Lights

10-05 Aesthetic, Concealment and Design

A. This section sets the criteria for poles in the public right-of-way or private streets for which there is a valid lease or wireless site agreement, including those poles that are owned in whole or in

part by the City, other public entities, and privately owned poles in the public right-of-way or public places or spaces.

B. Preference for Locations and Methods. The preferred locations of Small Wireless Communication Facility infrastructure, in order, are:

1. Existing or replacement metal/steel streetlight poles with cobra heads.

2. New standalone metal/steel poles on streets. New poles where the primary purpose for the pole is to support SWCFs are not allowed unless the city agrees to take ownership upon installation or if authorized by the Public Works Director. Generally, new poles within the rights-of-way are permitted only if the applicant can establish that:

   a. The proposed small wireless communication facility cannot be located on an existing or replacement street light pole;

   b. Even if an alternative location is determined to exist instead of installing a new pole in the right-of-way, the director may determine that a new pole in the right-of-way is in fact a better alternative based on the impact to the city, the concealment element design and the added benefits to the community.

3. New privately owned wood poles where the primary purpose for the pole is to support SWCFs are not allowed unless the city agrees to take ownership upon installation or if authorized by the director. Generally, new poles within the rights-of-way are permitted only if the applicant can establish that:

   a. The proposed small wireless communication facility cannot be located on an existing or replacement street light pole;

   b. Even if an alternative location is determined to exist instead of installing a new pole in the right-of-way, the director may determine that a new pole in the right-of-way is in fact a better alternative based on the impact to the city, the concealment element design and the added benefits to the community. In such case, the new pole must be a metal pole and adhere to the requirements herein.

4. Existing metal/steel traffic signal poles.

5. Existing steel electric distribution/transmission poles with SWCF connections (requirements as per pole attachment agreement with Centralia City Light).

6. Existing wood electric distribution/transmission poles with SWCF connections (requirements as per pole attachment agreement with Centralia City Light).

C. Permitted. Small wireless communication facilities (SWCF) are permitted in all zoning districts in public rights-of-way.

D. Setbacks. The following setbacks will be required for the installation of new small cell structures:

1. No setback from a property line is required if a pole is located in the right-of-way.

2. If a pole is located in a public place/space the SWCF shall meet the setbacks as per the underlying zoning.

3. Poles shall be set back a minimum of five feet from all driveways and outside of the visual site distance clear zone for intersections.

4. Poles shall have a minimum setback of one foot from all sidewalks.

5. Poles and equipment shall be a minimum of three feet from an existing fire hydrant or a building's fire connections.

6. Pole location cannot violate applicable local, state, or federal laws, including the 1990 Americans with Disabilities Act.

7. Alignment with Existing Poles. New poles need to align with existing streetlights and street trees to maintain a clear pedestrian zone.

E. Height. SWCF shall not exceed the maximum height of thirty-six feet (measured from the ground to the top of an antenna) in all zoning districts. Exception: the height may be increased to forty-four feet if the freestanding pole is designed for co-location or multi-carriers. The SWCF may exceed the height limit if attached to the side of a building and if an engineering study is conducted demonstrating the height is needed for the proper functioning of a provider's network. The study shall show the existing SWCF service area and service area intended to be covered by the proposed facility.

F. Attachment to Trees Prohibited. It is prohibited to use any tree as a support for any small wireless communication facilities or to use any tree to attach any metal guy or cable supporting any wireless communication facilities.

G. Small wireless communication facilities shall comply with all federal, state, and Centralia requirements and regulations including the Centralia Design and Development Guidelines.

H. Specification for Pole Installations on Non-City Light Poles.

New Pole	Existing Pole with Street Light	Specifications for Pole Installations	
X	X	Pole Type	Round, straight, steel poles are preferred, other pole types may be permitted if approved by the director.
X	X	Pole Color	Poles shall match or be substantially similar to the finishes, designs, colors, and other aesthetic characteristics of existing poles or designated for the area (black or gray). Mellen/Cherry/Alder Streets corridor—black poles Pearl/Tower Streets corridor—historic color of existing poles Main/Harrison Streets corridor—black poles All other areas within the city match pole colors within 200 feet
X	X	Color of all System Equipment	All small wireless equipment including antennas, shrouds, cantennas, brackets, conduits, cables, wires, and fiber shall be the same color as the pole (black or gray or brown).
X	X	Pole Design Parameters	As per the engineering standards and per the International Building Code
X	X	Pole Diameter	Maximum pole diameter for a signal SWCF carrier is 13 inches or the size of the existing pole. Maximum pole diameter for a multi-carrier SWCF pole is 34 inches.
	X	External (not attached) Equipment Cabinet Area	Maximum size: 48 inches long by 21 inches wide by 20 inches deep. If attached to the pole, it must match the color of the pole. If not attached to the pole, the equipment cabinets shall use camouflage design techniques including undergrounding, or other design options that will blend into the surrounding natural setting.
X		Built-in (pole base) Equipment Cabinet Dimensions	Round, 5 feet, 10 inches maximum height from the top of the concrete foundation to the top of the equipment cabinet shroud, maximum 20-inch diameter
X		Access Doors	Utility access—Meter shall be recessed as much as possible into the equipment cabinet. Luminaire access—hand hole with fused power disconnect. Carrier access—Lockable door appropriately sized.
X	X	Electrical Service	Per City of Centralia Light Department approval. Application required with Small Wireless Communication Facility Permit Application

New Pole	Existing Pole with Street Light	Specifications for Pole Installations	
X	X	Separation of Service	All new conduit and cable shall be separated by the owner in any pull boxes. SWCF services shall be separate from streetlight electrical service.
X		Pole Ventilation	Passive louvers and/or passive ventilation systems; if required, fans shall not emit noise greater than 50 dBs at 3.5 feet.
X		Cantenna Height	Single carrier with cantenna and external shroud is 6 feet max. The multi-carrier maximum height of a cantenna(s) is 7 feet, 6 inches. Cantenna height is measured from the top of the riser pole to the top of a cantenna.
X	X	Cantenna Shroud Transition	Tapered and smooth transition between the riser pole and cantenna is required.
	X	Cantenna Attached to an Existing Pole	Top-mounted cantenna shall be placed to look as if it is an extension of the pole. All cables shall be concealed within the pole. The canister antenna's outer diameter may not be more than 16 inches diameter by 36 inches height (maximum).
	X	Panel Antenna	36 inches in height and no further than 22 inches from the pole surface measured at the antenna's outer edge and 15 feet above grade. Panel antennas must be flush mounted to the pole and in no case greater than 6 inches off the pole to allow for antenna tilt. Panel antennas shall be located at least 12 inches below the streetlight or arm. Maximum of 3 panel antennas per pole.
X	X	RF Transparent Equipment Shroud (side-mounted on a pole)	49 inches in height, 19 inches in width, and 13 inches in depth. Equipment must be a minimum of 15 feet above grade and be attached flush to the pole.
X	X	Cables, Conduit, and Wiring	All conduit, cables, fiber, and wiring must be internally within the pole. Minimal conduit, cables, fiber, and wiring are allowed externally of the pole.
X	X	Owner or User Identification Signage	A 4-inch-by-6-inch (maximum) plate with the carrier's name, location-identifying information, and emergency telephone number shall be permanently affixed to the equipment.
X	X	Radio Frequency Warning Label	Radio frequency warning labels shall be mounted on the equipment and clearly marked on the pole or cabinet
X		Foundation	Constructed as per engineering specs

10-06 Labeling and Caution Tags

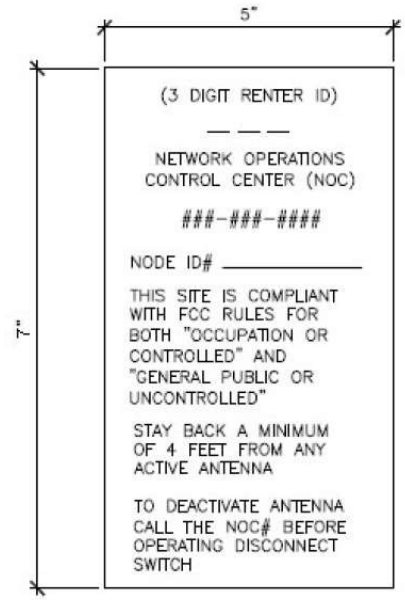
The following tags shall be provided for each wireless installation:

1. Applicant's identification (ID) and RF notification tags shall be installed on equipment and be clearly visible from the ground. Tags shall contain a company name, unique company equipment ID number, working clearance and a 24-hour contact phone number for deactivation notification.

2. RF caution tags for wireless antennas shall be applied on the pole directly below the antenna. These shall be clearly marked and visible from the ground and approved by City of Centralia Engineering prior to application per Federal Communication Commission (FCC) 47 CFR 1.1307(b).

3. Maintaining tags and labels
   All labels and tags must be made of durable material that can withstand the weather and elements. All tags and labels shall be kept up by the applicant, and shall be replaced by the applicant immediately if damaged or faded.

Example of RF Notification Tag



Notes:
1. 5" x 7" aluminum (yellow with black lettering)
2. Located on side of equipment cabinet
3. Made of weather and corrosive resistant material

Example of RF Caution Tag:

NOTE: Color and Layout may change based on requirements laid out in WAC.

Notes:
1. 5" x 7" aluminum (yellow with black lettering)
2. Located on side of equipment cabinet
3. Made of weather and corrosive resistant material

10-07 Trenching

All trenching and restoration within the right of way shall be in accordance with the City of Centralia Development Guidelines Chapter 4 and an approved right of way permit.

10-08 Location and Staking

All small wireless communication facilities shall be located on existing or replacement street light poles wherever possible. Location of freestanding poles in areas without an existing street light pole within 400 feet of the desired location shall adhere to all setback and site distance requirements of the City.

Location and size of pad mount facilities not attached to poles shall be in accordance with the Standard Details. Pad mount facilities may not interfere with other existing underground facilities or obstruct the pedestrian way.

A pre-construction meeting shall be held with the City after locates have been completed prior to commencing staking. All construction staking shall be inspected by the City prior to construction. Staking shall be maintained throughout construction.

The minimum staking of new poles shall be as follows:

1. Location and elevation to the center of every pole base.
2. Location and elevation of each service disconnect.
3. Location and elevation of each J-box.

7.03 —Testing

All luminaires and small cell wireless facilities shall be subject to a L & I electrical inspection. Lamp, photocell and fixture of a new luminaire shall be warranted for a period of one year.

LIST OF DRAWINGS

CHAPTER 10: SMALL WIRELESS COMMUNICATION FACILITIES