# PUBLIC WORKS STANDARDS

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SECTION 1 INTRODUCTION

1.01 Application

These Standards shall apply to all improvements within the public right-of-way and/or public easements, to all improvements required within the proposed public right-of-way of new subdivisions, for all improvements intended for ownership, operation and maintenance by the City and for all other improvements (on or offsite) for which the City of Newcastle Municipal Code (NMC) requires approval from the City Manager, Public Works Director, City Engineer, Director of Community Development, and/or the City Council. These standards also apply to new streets, street improvements, or other infrastructure improvements that will remain privately owned. These Standards are intended as guidelines for designers and developers in preparing their plans and for the City in reviewing plans. Where minimum values are stated, greater values should be used whenever practical; where maximum values are stated, lesser values should be used where practical. The developer/proponent is however cautioned that higher standards, and/or additional studies, and/or environmental mitigation measures may, and will, in all likelihood, be imposed by the City when developing on, in, near, adjacent, or tributary to sensitive critical areas to include, but not be limited to, erosion, flood, steep slope, landslide, and seismic hazards; and streams and wetlands, creeks, ponds, lakes, certain wildlife habitat, unstable soils, etc.

Alternate design standards will be accepted when it can be shown, to the satisfaction of the City, that such alternate standards will provide a design equal to or superior to that specified. In evaluating the alternate design, the City shall consider appearance, traffic operations, durability, ease of maintenance, public safety, and other appropriate factors.

Any improvements not specifically covered herein by these Standards must meet or exceed the current edition of the Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge & Municipal Construction, revised as to form to make reference to Local Governments. Said specifications shall be referred to hereafter as the "Standard Specifications".

Where improvements are not covered by these Standards nor by the WSDOT Standard Specifications or Standard Plans, the City will be the sole judge in establishing appropriate standards. Where these Standards conflict with any existing City ordinances code or discrepancies exist within the body of this text, the higher standards shall be utilized as determined by the Department of Community Development Director.

Plans for major improvements in the public right-of-way or within public easements, or improvements to be "deeded" or "gifted" to the City, shall bear an approval signature from the City.

The designer shall submit calculations or other appropriate materials supporting the design of utilities, pavements, and storm drainage facilities. The designer shall submit calculations for structures and other designs when requested by the City Engineer Director and/or Building Official.
1.02 Definitions

Definitions: As used herein:

(a) "City" means the City of Newcastle, Washington, King County, a municipal corporation, existing under and by virtue of the laws of the State of Washington. Actions designated as taken by the City are the acts of the City Council acting through the City Manager.

(b) "City Manager" means the City’s duly appointed City Manager or his/her authorized representative.

(c) "Contract Documents": The contract documents shall consist of the following and in case of conflicting provisions, the first mention shall have precedence. These documents shall form the contract:

(1) Developers Agreement
(2) City of Newcastle Public Works Standards
(3) Other Applicable City Municipal Codes
(4) City Right-of-Way Use Permit
(5) Plans
(6) Standard Details (WSDOT Specifications)
(7) Specifications - Conditions and Standards of the Contract (As Approved by City)
(8) City Approved Addenda
(9) City Approved Change Orders

(cd) "Contractor" means the Developer's contractor or subcontractor.

(de) "Developer" means any person, firm, partnership, association, joint venture, or corporation or any other entity responsible for a given project, for which an approval is required from the City, the party having an agreement with the City to cause the installation of certain improvements (public and private), to become a part of the City's utility and/or roadway system upon completion and acceptance. The term shall also include the Developer's contractor employed to do the work or the contractor's employees.

(e4) "Development" means the construction, reconstruction, conversion, structural alteration, relocation, enlargement, or change in use of any structure or property, or any project which will increase vehicle trips per day during peak hour traffic, or any project which negatively impacts the service level, safety, or operational efficiency of serving roads and storm drainage systems. Individual single family residences are excluded from this definition.

(fg) "Developers Agreement" means any written agreement such as SEPA mitigation conditions, conditions of approval for subdivisions, conditions associated with any permit, approved plans, and any other written agreement between the City and a Developer.
1.03 Developer to be Informed

The Developer is expected to be fully informed regarding the nature, quality, and the extent of the work to be done, and, if in doubt, to secure specific instructions from the City.

1.04 Authority of the City Manager

The City Manager or his/her authorized representative shall have the authority to stop work whenever development is being done contrary to the provisions of the Standards, other City code, or regulation of the city; in his/her opinion, the same shall be necessary to insure compliance with the plans and specifications and shall
have authority to reject work and materials which do not conform and to decide questions which may arise in the execution of the work and have the authority to determine the amount, quality, acceptability and fitness of the several kinds of work, material and equipment and to decide all questions relative to the classification of materials and fulfillment of the Contract, compliance with the Standards, and to reject or condemn all work or material which does not conform to the provisions herein terms of the Contract. The City Manager's decision in all matters is the decision of the City, and can terms of the Contract only be changed by the City.

Moreover, the City has not so delegated, and the City Manager or his authorized representative(s) does (do) not purport to be a safety expert, is not so engaged in that capacity under the Contract, and has neither the authority nor the responsibility to enforce construction safety laws, rules, regulations or procedures, or to order the stoppage of work for claimed violations thereof. The furnishing by the City of resident project representation and/or inspection shall not be construed by the Contractor or Development that the City is responsible for the identification or enforcement of such laws, rules or regulations.

1.05 Payment for City Services

The Developer shall be responsible for promptly reimbursing the City for all costs and expenses incurred by the City in the pursuit of project submittal, review, approval, and construction. These costs include, but are not limited to, the utilization of staff and "other" outside consultants as may be necessitated to adequately review and inspect construction of the project(s). All legal, administrative, and engineering fees for project review, meetings, approvals, site visits, construction inspection, etc., shall be subject to prompt reimbursement. The Developer is cautioned that project approval (City acceptance) and occupancy permits will be denied until all bills are paid in full. The City may, at its sole discretion require that funds be placed in an account at the City by which the City may draw from to reimburse said costs.
SECTION 2 PERMITS

2.01 Permit Required

No person, firm or corporation shall commence work on the construction, alteration or repair of any facility located either in the public right-of-way, public easement, or private property without any necessary permit(s) first having been obtained from the City, provided the City shall not issue right-of-way permits for City-sponsored projects. A separate permit may be required for distinctly separate locations or types of work on the same project. Permits or approvals from other agencies may be required for some types of work. In such cases, the developer shall provide the City with copies of those permits or approvals, and the associated plans, when requested.

2.02 Permit Application

Any party requesting such permit shall file written application therefore with the City at least ten (10) working days before construction is proposed to start. Such application shall be made on a standard City form provided for that purpose, and shall include:

(a) The name and address of the applicant (and the name and address of property owner(s) if different than applicant);
(b) The name and address of the owner(s) of the property abutting the street where the work is proposed;
(c) The street location of the proposed work, giving the street address or legal description of the property involved;
(d) A detailed plan showing the dimensions of the abutting properties and the dimensions and location of all existing and/or proposed facilities and other pertinent features necessary to understand the proposed work;
(e) The plan shall also show the location of buildings, loading platforms or roof overhangs (if significant), and facilities being served or to be served by the new construction.

The City may require, at their discretion, the filing of any other information when in their opinion such information is necessary to properly enforce the provisions of these Standards or other applicable codes.

2.03 Permit Issued

No permit shall be issued until the proposed work has been approved by the appropriate official. Adjudication of disagreements regarding approvals shall be made by the City Manager, whose decision shall be final.

No plan shall be approved nor a permit issued where it appears that the proposed work, or any part thereof, conflicts with the provisions of these Standards or any other applicable codes of the City of Newcastle, nor shall issuance of a permit be construed as a waiver of the Zoning code or other code requirements concerning the plan.

A fee of an amount as designated by the City’s fee schedule shall accompany all
applications for permits. **Permits will not be finalized or closed out unless the developer is current with all applicable fees.**

### 2.04 Submittal Requirements

Detailed plans, prepared and sealed by a licensed engineer, shall be submitted to the City for review and approval prior to the commencement of any construction. Applicant’s engineer shall be a professional engineer, registered as such in the State of Washington. The City shall, prior to the issuance of construction permits, approve the final plans. Plans shall include, as applicable all aspects of the project, including, but not limited to those items identified by the City. Specifications shall be required and submitted with the plans if general notes do not adequately cover the project requirements. A submittal checklist is included in the appendices of these standards.

All plans are to be submitted to the City for review. Any necessary easements or dedications shall be submitted for review along with the plans. The following summarizes report requirements.

A. **Traffic Impact Analysis (TIA):** A TIA is required for projects that impact traffic volumes, safety, and performance. At a minimum, any project that will increase the PM Peak Hour traffic by more than 10 trips per hour shall submit a TIA. The TIA shall be completed by a licensed engineer in general accordance with the outline provided by the Public Works Department. The scope of the TIA will be determined by the city engineer, based on the proposed impacts. Intersection Level of Service (LOS) impacts shall be analyzed in the TIA for all intersections wherein the impact is greater than 10 trips per hour, during the PM Peak Hour. A TIA may also be required where requested by the city engineer, based on a project’s impacts to vehicle turning movements, parking, sight distance, access location, or other.

B. **Geotechnical Report:** Geotechnical engineering reports shall be prepared by a licensed geotechnical engineer and shall cover all portions of the project within his/her expertise including site history; geologic structures; surface conditions; subsurface conditions; geologic hazards per NMC 18.24; site preparation; structural fill placement and testing; use of onsite materials for structural fill and backfill; surface and subsurface drainage; dewatering; recommendations for foundation support; excavation conditions and associated hazards; temporary and permanent slopes; design parameters for retaining structures and structure backfill and drainage; and pavement design. The geotechnical engineer shall be retained as the engineer-of-record for the duration of the project.

C. **Technical Information Report (TIR):** The TIR, including a downstream and off-site analysis, is required for all projects that impact, improve, modify, or expand the surface water drainage system. The TIR shall be prepared by a licensed engineer and shall be formatted to reflect the TIR outline and content presented in the currently adopted surface water design manual. King County Surface Water Design Manual as adopted.

D. **Temporary Erosion and Sedimentation Control (TESC) Plan:** Prior to issuance of a right-of-way or other necessary construction permits, the developer shall prepare and submit a TESC Plan for review. The plan shall be prepared by a licensed engineer. The plan shall include plans, notes, location and type of temporary and permanent best management practices (BMPs), depicted on plan sheets, including notes and details to provide for minimum
measures necessary to prevent erosion on-site and sediment from discharging offsite and fugitive dust from generated as a result of construction activities from entering into the public right-of-way, municipal or private storm water systems including roadside ditches or other conveyances, natural waterways not limited to creeks and wetlands, or environmentally sensitive areas and from otherwise being carried away from the construction area by stormwater or air. If the site is required to obtain coverage under the Washington State Stormwater General Permit, the required Stormwater Pollution Prevention Plan (SWPPP) shall be submitted in lieu of a TESC Plan.
SECTION 3 PUBLIC WORKS CONSIDERATIONS

3.01 Financial Guarantees

Financial guarantees of the work covered under these standards shall be financially provided in accordance with the applicable City codes and specifically Title 12 NMC. City sponsored projects do not need to meet the requirements of this section.

3.02 Hold Harmless Clause

The Developer shall indemnify and hold harmless the City and City Engineer, and their agents and employees, from and against all damages, losses, and expenses as specified in Title 12 NMC. City sponsored projects do not need to meet the requirements of this section.

3.03 Developer’s Public Liability & Property Damage Insurance

The Developer shall maintain all required public liability and property damage insurance as specified in Title 12 NMC. City sponsored projects do not need to meet the requirements of this section.

3.04 Compensation & Employer’s Liability Insurance

The Developer shall maintain all required employer insurance and employee compensation as specified in Title 12 NMC. City sponsored projects do not need to meet the requirements of this section.

3.05 Non-interference

The permitted developer shall be responsible for minimum interference with:

- Traffic Routing
- Fire Facility Clearance
- Adjoining Property
- Utility Facilities
- Natural Surface Drainage

Prior to construction, these items are to be discussed with the City Public Works Department, and/or City Fire and Police Departments and/or the City Building Official, and special provisions may be included in any applicable City Permit(s).

3.06 Work Standards

All work performed pursuant to a permit issued shall be done in accordance with standards published in the current Standard Specifications for Road, Bridge & Municipal Construction, State of Washington Department of Transportation (WSDOT), revised as to form to make reference to Local Governments. The City Engineer may require roadway designs in accordance with the WSDOT Design Manual—Modified Design Level in order to achieve reduced pavement widths.

The following shall be applicable when pertinent, when specifically cited in the standards, or when required by county, state, or federal funding authority agencies:
PUBLIC WORKS CONSIDERATIONS

(a) WSDOT, Local Agency Guidelines (LAG Manual), as amended.
(c) WSDOT, Construction Manual, current edition.
(d) Guidelines for Urban Arterial Program, WSDOT, as amended.
(e) Design criteria of federal agencies including the Federal Housing Administration, Department of Housing and Urban Development, the Federal Highway Administration and Department of Transportation.
(f) American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets, current edition as adopted by WSDOT.
(g) AASHTO, Standard Specifications for Highway Bridges, current edition.
(k) WSDOT, Standard Specifications for Road, Bridge, and Municipal Construction, current edition as amended. These will be referred to as the “Standard Specifications”.
(l) WSDOT, Standard Plans for Road and Bridge Construction, current edition as amended. These will be referred to as the “Standard Plans”.
(m) WSDOT, Design Manual, current edition as amended.
(o) Institute of Transportation Engineers (ITE), Traffic Engineering Handbook, current edition.
(r) King County, Surface Water Design Manual, or other drainage design manual, as may be adopted.
(s) Newcastle Municipal Code (NMC).
(t) Newcastle Trail Guidelines, as adopted by Ordinance 13-545, April 2, 2013.
(x) Western Washington Phase II Municipal Stormwater Permit.

Precedence. In case of conflicting standards, codes, or other provisions, the first mention shall have precedence.

(1) Developers Agreement
(2) Conditions of Approval
(3) City of Newcastle Public Works Standards
(4) Other Applicable City Municipal Codes
(5) Standard Specifications
(6) Plans
3.07 Variances

A. Variances from these standards may be granted by the Director upon evidence that such variances are in the public interest and that requirements for safety, function, fire protection, appearance and maintainability based upon sound engineering judgment are fully met. Variance requests for subdivisions should be proposed at preliminary plat stage and prior to any public hearing or land use decision. Variances must be approved prior to approval of the engineering plans for construction. Any anticipated variances from these standards which do not meet the Uniform Fire Code shall also require concurrence by the fire marshal.

B. Application for Variance. Application for a variance shall be filed with the Director in writing and shall be accompanied by an appropriate fee as established by resolution, to pay for the cost of processing the application. All applications shall describe the variance, with specific references to the sections being requested for variance, contain a statement as to why the variance is necessary, and why it would meet the criteria of this chapter. The application shall also contain scaled drawings of the variance area, abutting roads, and all property within 300 feet thereof.

C. Appeal. Decisions of the Director may be appealed through a closed-record hearing before the Hearing Examiner per NMC 19.15.020. Proposed projects will not be allowed to proceed to land use approval until all known variances have been identified and approved.

3.0708 Inspection

A. Construction Control

Work performed for the construction or improvement of City roads, commercial sites, residential neighborhoods, and/or utilities whether by a private developer, by City forces, or by a City contractor, shall be done to the satisfaction of the City and in accordance with approved plans. It is emphasized that no work shall start until such plans are approved, permits issued, and pre-construction meeting held. The City shall approve any revisions to the approved plans before revisions are implemented. Failure to acquire the City’s approval for any work can result in removal or modification of construction at the contractor’s or developer’s expense.

The City requires a developer and/or their contractor to retain an engineer licensed to practice in the specialty of geotechnical engineering and that this engineer be kept on retainer for their representative project during the entire construction process. The geotechnical engineer shall make periodic visits.
and inspections for, but not limited to, trench and foundation excavation and backfill, preparation of road subgrade, roadway fill and compaction efforts, slope construction and stability, surface and subsurface drainage, erosion control, and any other pertinent issues that arise throughout construction. Sites that are required to obtain coverage under the Washington State Construction General Permit or an Individual Permit shall abide by inspection frequencies, discharge monitoring, and reporting requirements specified in those applicable state permits.

**AB. General**

The City shall exercise full right of inspection of all excavating, construction, and other invasions of City right-of-way or public easements. The City Engineer or designated official shall be notified on the working day prior to commencing any work in the City's right-of-way or public easements. The city engineer and/or his authorized representative is authorized to and may issue immediate Stop Work Orders in the event of noncompliance with this chapter and/or any of the terms and provisions of the permit or permits issued hereunder.

Timely notification by the developer as noted herein is essential for the City to verify thorough inspection that the work meets the standard. Failure to notify in time may oblige the City to arrange appropriate sampling and testing after-the-fact, with certification, by a professional engineer. Costs of such testing and certification shall be borne by the developer. At the time that such action is directed by the city engineer, the city engineer may prohibit or limit further work on the development until all directed tests have been completed and corrections made to the satisfaction of the city engineer. If necessary the City may take further action as set forth in the Newcastle Municipal Code (NMC).

*It is the responsibility of the developer or their agents to have an approved set of plans and any necessary permits on the job site whenever work is being performed. 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 expense.*

**BC. Requirements for subdivision, binding site plan, commercial and right-of-way land use inspection.**

On all road and drainage facility construction, proposed or in progress, which relates to subdivision, binding site plan, commercial and right-of-way development, control and inspection will be done by the city engineer. Unless otherwise instructed by the city engineer, construction events which require monitoring or inspection are identified as follows:

1. Preconstruction Conference. Three working days’ prior notice. Conference must precede the beginning of construction and include contractor, design engineer, utilities, and other parties affected. Plan approvals and permits must be in hand prior to the conference.
(2) Clearing and Temporary Erosion/Sedimentation Control. One working day’s notice prior to initial site work involving drainage and installation of temporary water retention/detention and sedimentation control. Such work to be in accordance with the currently adopted Surface Water Design Manual and the approved plans.

(3) Erosion and Sedimentation Control. Within forty-eight hours of a significant rain event, defined as greater than 0.25 inches of rain within 24 hours, to ensure proper function of temporary BMP’s installed onsite.

(43) Utility and Storm Drainage Installation. One working day’s notice prior to trenching and placing of storm sewers and underground utilities such as sanitary, water, gas, power, telephone, and TV lines.

(54) Utility and Storm Drainage Backfill and Compaction. One working day’s notice before backfill and compaction of storm sewers and underground utilities.

(65) Subgrade Completion. One working day’s notice at stage that underground utilities and roadway grading are complete, to include placement of gravel base if required. Inspection to include compaction tests and certifications described in the WSDOT Standard Specifications.

(76) Curb and Sidewalk Forming. One working day’s notice to verify proper forming and preparation prior to pouring concrete.

(87) Curb and Sidewalk Placement. One working day’s notice to check placement of concrete.

(98) Crushed Surfacing Placement. One working day’s notice to check placement and compaction of crushed surfacing base course and top course.

(109) Paving. Three working days’ notice in advance of paving with hot mix asphalt or Portland cement concrete.

(1011) Structural. Three working days’ notice prior to each critical stage such as placing foundation piling or footings, placement and assembly of major components, and completion of structure and approaches. Tests and certification requirements will be as directed by the city engineer.
CD. Final Construction Inspection

Fifteen working days notice prior to overall check of road or drainage project site, to include completion of paving and associated appurtenances and improvements, cleaning of drainage system, and all necessary clean-up and site restoration. Prior to final approval or occupancy, to ensure proper installation of permanent stormwater facilities, the city engineer shall verify that a maintenance plan is completed and responsibility for maintenance is assigned for stormwater treatment and flow control facilities. The City shall, upon completion of a satisfactory final inspection, issue a letter of completion for the project. Final inspection will not take place and the letter of completion will not be issued unless the developer is current with all required fees.

DE. Final Maintenance Inspection

Thirty days notice prior to the end of the maintenance period. Prior to release of the maintenance guarantee, there shall be successful completion of the maintenance period as described in Section 3.01, repair of any failed facilities and the payment of any outstanding fees.

3.0809 Record Drawings

Permittees Developers who install systems within, on, or below the City's public rights-of-way, or public easements, or tracts to be dedicated to the City, shall furnish the City with accurate drawings, plans and profiles, showing the finished location, orientation, and curvature of all aboveground and underground structures installed, including existing facilities where encountered and abandoned installations. Horizontal locations of utilities are to be referenced to street centerlines, as marked by survey monuments, and shall be accurate to a tolerance of plus or minus one half (1/2) foot. The depth of such structure may be referenced to the elevation of the finished street above said utility, with depths to the nearest one-tenth foot being shown at a minimum fifty-foot interval along the location of said utility.

Prior to submittal of the final signed record drawings, the developer shall submit preliminary record drawings for review. The preliminary drawings shall identify completed work differing from the approved drawings by use of strikethroughs, colored markings, cross-outs, redlines, etc. Once approved, said markings and items not constructed shall be removed prior to submitting the final signed drawings.

Such record drawings shall be submitted to the City within thirty (30) calendar days after completion of the work, and prior to release of performance guarantees. Record drawings shall be stamped, signed and dated by an engineer currently licensed in the State of Washington, who is familiar with the project. Said engineer shall attest to the accuracy of the information shown on the drawings, on an approved signature block placed on every sheet. A suggested record drawing signature block is as follows:
In the event that the permittee developer does not have qualified personnel to furnish the record drawings required by this section, he shall advise the city engineer in order that necessary field measurement may be taken during construction for the preparation of record drawings. All costs of such field inspection and measurement, to include the preparation of the record drawings, shall be at the sole expense of the permittee developer.

**Drawing Standards:**

Minimum scale – 1" = 50' horizontal; 1" = 5' vertical
Detail scale – Larger as necessary

Record drawings shall be submitted on permanent, stable reproducible mylar with a signature and data which verifies the "as-built" condition of the project. All data as shown on the drawings shall be "fixed line" or ink. Sticky back (glue) reproductions or "sepia" mylars shall not be considered acceptable. Electronic files shall also be provided to the City, specifically actual data files, which include files produced using AutoCAD and/or ArcGIS software and an original PDF of the plan set, no scanned images. All file format submittals will be reviewed and approved by the city engineer.

**3.10 Easements**

Where City utilities and/or their conveyance systems cross private lands, an easement shall be granted to the City. The developer will generally prepare, process, record, and file all easements at no cost to the City. If the property is platted the easement may be conveyed at the time the short plat or final plat is filed. All easements not shown on the plat must be prepared by a licensed surveyor or engineering firm capable of performing such work.

Drainage easements shall be as specified in the currently adopted surface water design manual, but in no cases shall be less than 15 feet in width for a single utility and 20 feet for dual utilities or otherwise as approved by the City. Construction easements shall be 25 feet minimum in total width, including the permanent easement. Where trench depths or utility size dictate, the City may require a wider easement that considers the proximity of adjacent utilities, structures, slopes, or roadways.
3.11 Utilities

Prior to performing excavation, the developer shall be responsible for having all utilities located in accordance with RCW 19.122. The utilities one-call underground locating center phone number is 1-800-424-5555 or 811.

With the exception of other requirements, agreements, or regulatory stipulations, the City shall have the authority to approve the depth, orientation, height, and location of all utilities located within the public rights-of-way and public easements. Gravity systems (sewer and storm drainage) shall have precedence for location over other utilities. The location of fire hydrants shall be as directed by the Fire Marshall.

The City does not purport to know the size, type, material, function, or location of existing underground utilities. The developer shall be responsible for having all utilities identified and located during design and plan development, and for providing timely notification of all utilities in advance of any construction in right-of-way, easements, and private property. Further, the developer shall be responsible for contacting the effected utility owners to acquire utility information and procedures for moving, abandoning, re-locating, repairing, working around, shutting down, or otherwise impacting the utilities prior to commencing construction. Work shall proceed and be coordinated and scheduled to cause the least amount of service disruption as possible.

3.12 Traffic Control

Public safety is of paramount importance. Primarily, traffic control shall be provided and implemented for the benefit and safety of the traveling public, not for the convenience of the contractor or suppliers. However, timely completion of all work within existing roadways and easements is also important and therefore, a balance must be reached for each individual project. Disruption of traffic shall be held to the minimum necessary to complete the work.

The developer shall be responsible for interim traffic control during construction on or along traveled roadways. The City may, at their discretion, require that the developer submit a detailed traffic control plan for review and approval. Traffic control measures shall follow the guidelines of the WSDOT Standard Specifications and applicable state law. All barricades, signs, and flagging shall conform to the requirements of the MUTCD. Signs must be legible and visible and shall be removed at the end of each workday if not applicable after construction hours.

When road closures and detours cannot be avoided the developer shall notify the City in advance. The City may require a detour plan to be prepared, submitted, and approved prior to closing any portion of a City roadway. Advance public notice for those affected by the closure shall be required and carried out by the developer.
3.13 Required Improvements

Except as specified herein, the developer shall construct the required improvements from the center line of the right-of-way outward toward the developer’s property line. The required improvements shall be designed and constructed per the requirements of these standards unless additional improvements are required by an adopted Comprehensive Plan or other City-Council adopted plan or requirement.

If the one-half of the right-of-way opposite the subject property has not been improved to the minimum standards herein, the developer shall install improvements in the right-of-way as follows:

A. The developer shall improve the half of the right-of-way abutting the subject property in accordance with these standards (“frontage improvements”), and

B. The developer shall further grade and pave outward from the right-of-way centerline, a minimum driving lane of 10 feet and a minimum paved shoulder of 5 feet. Improvements may also include filling drainage ditches and installing storm drainpipe and catch basins, asphalt tapers, and channelization, as required.

3.14 Dedication of Right-of-Way

If a right-of-way abutting the subject property is not wide enough to contain the required improvements, the developer shall dedicate as right-of-way a strip of land adjacent to the existing right-of-way, at a width in accordance with these standards.

3.15 Replacement of Damaged or Substandard Existing Improvements

For properties that have existing abutting and/or adjacent street improvements, the developer shall remove and replace any damaged or substandard improvements in conjunction with the development of the property. Replacement shall include, but not be limited to, cracked or buckled curb, gutter, and sidewalk; landscaping; storm drainage; street trees, and curb ramps.

3.16 Pedestrian Access

All road improvement and development projects shall include approved pedestrian access as part of the design. The City may require the developer to install public pedestrian walkways, other than sidewalks as otherwise required by these standards, where the walkway is reasonably necessary as a result of the development activity.

3.17 Street Signs, Pavement Markings, and Traffic Control Devices

The developer shall pay for design and installation of all street signs, pavement markings, and traffic control devices in the location and manner approved by the City.

3.18 Erosion and Sedimentation Control
The developer shall be responsible for the implementation of the approved TESC Plan during the course of the work and for continually updating the TESC Plan to address changing site conditions, BMP effectiveness, and employ all or any additional measures to reduce on-site erosion and prevent off-site sedimentation. Developer is responsible for abiding by the requirements set forth in Appendix 1 – Minimum Technical Requirements for New Development and Redevelopment of the Western Washington Phase II Municipal Stormwater Permit. Prior to final acceptance of the work, all disturbed areas shall be either fully or stabilized. Removal of temporary erosion and sedimentation controls cannot take place until 70% of the seeded area have established, constituting a stabilized site condition.

3.19  Pavement Restoration

In order to maintain the pavement surface of existing city streets, projects constructing road widening, frontage improvements, and/or utility installations shall be required to restore the pavement to a continuous mat of asphalt surfacing. All such projects shall provide a full-width 2-inch thick pavement grind and overlay, plus any necessary prelevel course, for the entire length of the widening, frontage improvements, or longitudinal utility work, or where the number of transverse pavement cuts for utility trenches exceed two.

The requirement for full-width overlay may be waived by the city engineer based on the condition of existing pavement, roadway drainage, and the extent of required changes to channelization.

3.20  Traffic Impact Analysis

A.  General

To adequately assess a development traffic impact on the transportation system and level of service (LOS), the public works department may require a traffic impact analysis (TIA). The requirement for a TIA will be based on the size of the development proposed, existing street and intersection conditions, traffic volumes, accident history, community concerns, and other pertinent factors relating to traffic impacts attributable to development projects.

B.  TIA – When Required

For any project that creates 10 or more new p.m. peak hour trips, a developer shall provide a trip generation and trip distribution for the project for a distance from the project wherein the new trips fall below 10 p.m. peak hour trips. Further, for projects that add 10 or more p.m. peak hour trips to an intersection of a Principal, Minor, or Collector Arterial, the developer shall provide a Traffic Impact Analysis (TIA) for those intersections meeting the requirements of this section. This requirement shall be waived if, in the opinion of the city engineer, there exists current information from the City or another project to adequately assess the project’s impacts.

For development projects that do not trigger the requirement to prepare a TIA, the developer shall perform a minimum analysis of the existing and proposed transportation infrastructure, including identifying any of the following...
deficiencies, whether existing, or caused by the development, on proposed or existing roadways:

(1) Sight distance;
(2) Illumination;
(3) Pedestrian and bicycle facilities;
(4) Parking;
(5) Bus stops.

C. **TIA Scope of Work**

The level of detail and scope of work of a TIA may vary with the size, complexity, and location of the development. A TIA shall be a thorough review of the immediate and long-range effects of the development on the transportation system. TIAs shall be prepared by an engineer licensed to practice in the State of Washington with special training and experience in traffic engineering and who is a member of the Institute of Transportation Engineers (ITE). If required, the Traffic Impact Analysis shall follow the following outline:

(1) **Project Description and Maps.** Provide a copy of the site plan showing the type of development, street system, right-of-way limits, access points, and other features of significance. Also include pertinent nearby off-site information such as locations of adjacent intersections and driveways, land use, etc., and vicinity map showing the transportation system to be impacted by the development. Discuss frontage improvements, dedications, access, etc. Identify horizon years for traffic analysis purposes.

(2) **Background Information.** Identify and describe any current relevant traffic information that describes the characteristics of the transportation system and volumes. Identify expected increases in background traffic volume or pattern changes.

(3) **Trip Generation and Distribution.** Provide explanation and maps to document and illustrate the project’s estimated trips and distribution. Trip generation shall be estimated using the latest edition of the ITE Trip Generation Manual. The methodology for trip distribution shall be clearly defined and discussed in detail. Break out and describe vehicles, pedestrians, bicycle, transit, and other transportation modes.

(4) **Existing Conditions.** Discuss affected street characteristics including functional classification, travel lanes, lane width, shoulders, bicycle and pedestrian facilities, and traffic control at study intersections. Identify safety and access problems including accident history, sight distance restrictions, traffic control, and pedestrian conflicts. Obtain all traffic data from the City and surrounding jurisdictions, if applicable. If unavailable, the individual firm preparing the TIA shall collect the necessary data to supplement discussions and analysis in the TIA.

(5) **Future Traffic.** Future traffic conditions Not Including Site Traffic shall be estimated, for the horizon year for project development, including planned transportation improvements and other relevant development projects. Future traffic conditions Including Site Traffic
shall be estimated at development completion. These analyses shall address both capacity and safety. A figure will be required showing daily and peak period turning movement volumes for each study intersection. In addition, a figure shall be prepared showing the baseline volumes with site-generated traffic added to the street network. This figure will represent site specific traffic impacts to existing conditions.

(6) Impacts to Traffic Operations. The level of service (LOS) and capacity analysis shall be conducted for each study intersection. If the development is scheduled to be constructed in phases, the TIA shall conduct a LOS analysis for each separate phase. The individual or firm preparing the TIA shall calculate the intersection LOS for each of the following conditions:

(a) Existing peak hour traffic volumes (with figure).
(b) Existing peak hour traffic volumes including site-generated traffic (with figure).
(c) Future traffic volumes not including site-generated traffic (with figure).
(d) Future traffic volumes including site-generated traffic (with figure).
(e) Level of Service results for each intersection for each traffic volume scenario, with table. Table shall show LOS results for a.m. and p.m. peak periods, if applicable. The table shall show LOS conditions with corresponding vehicle delays for signalized intersections (all approaches) and LOS conditions for the critical movements at unsignalized intersections.

(7) Mitigation. The TIA shall include a proposed mitigation plan. The mitigation may be either the construction of necessary transportation improvements, or contributions to the City for the development’s fair share of the costs for identified future transportation improvements. Contributions may include King County MPS, Traffic Impact Fees, or fee-in-lieu fees as may be determined through the project’s SEPA review.
SECTION 4 STREET, PEDESTRIAN PATHS, AND BIKEWAYS

4.01 General Considerations

The overall goal of this chapter is to encourage the uniform development of an integrated, fully accessible public transportation system that will facilitate present and future travel demand with minimal environmental impact to the community as a whole.

Development of properties on or tributary to substandard or unsafe (safety issues) roadways may, depending on the size and type of development, be cause for “off-site” improvements to the substandard or unsafe corridors, to include road drainage facilities. The city engineer shall determine when and if such conditions exist. At a minimum “half street improvements” will be required as a condition of development in and along the entire property as it abuts City rights-of-way. The City shall determine what qualifies as “development”.

This chapter provides minimum street design standards as well as minimum design standards for “stand alone” pedestrian and/or bike trails/paths. Higher design and construction standards may be warranted due to localized design and construction parameters.

4.02 Streets

A. General

All plans submitted for channelization, traffic control, and road construction or reconstruction shall be prepared by a professional engineer licensed in the State of Washington. All street design must provide for the maximum traffic loading and capacity conditions anticipated. The width and grade of the pavement must conform to specific standards set forth herein for safety and uniformity.

The Fire Marshall shall approve access configuration and the location of fire hydrants for new development and shall identify areas of new development that may be required to be sprinkled due to access or fire flow constraints.

B. Design Standards

The design of streets and roads shall depend upon their type and usage. The design elements of streets shall conform to City standards as set forth herein and current design practice as set forth in Section 3.06. On existing streets, design speed shall be set at five (5) miles-per-hour above the posted speed limit. In locations where the speed limit changes within 500 feet of the property, the higher value shall be used.

The layout of streets shall provide for the continuation of existing arterial and neighborhood collector streets in adjoining subdivisions or of their proper projection when adjoining property is not yet subdivided. Local access streets, which serve primarily to provide access to abutting property, shall be designed to discourage through traffic. See Table 1.1 for the Minimum Street Design Standards.
(1) Street profile grade should conform closely to the natural contour of the land. In some cases, a different grade may be required by the city engineer. Unless otherwise approved by the City, the minimum profile grade shall be 0.7 percent. In no case shall the minimum grade be less than 0.5 percent. Local conditions may, in the opinion of the city engineer, require a lesser profile grade in which case (if specifically approved by the city engineer), the minimum allowable profile grade shall be 0.5 percent. The maximum allowable grade shall be as further specified herein.

(2) Maximum grade as shown in Table 1.1 may be exceeded for short distances of 300 feet or less, upon showing that no practical alternative exists. Exceptions which exceed 15 percent will require verification by the fire marshal that additional fire protection requirements will be met. Grades exceeding 12 percent shall be paved with asphalt concrete (AC) or Portland cement concrete (PCC). Any grade over 15 percent must be PCC. Grades shall not exceed 20 percent. Grade transitions shall be constructed as smooth vertical curves.

(3) The pavement and right-of-way width depend upon the street classification and the transportation needs of the corridor. Table 1.1 shows the minimum widths allowed. Street widths shall be measured from face of vertical curb to face of vertical curb on streets with cement concrete curb and gutter, and from centerline of gutter to centerline of gutter on streets without concrete vertical curb and gutter.

(4) The developer is required to retain a licensed soils engineer to make soils tests and to provide engineering recommendations for design of the sub-base and roadway sections based on “in place” soils, depth of “free draining” structural materials, projected pavement loadings, roadway classification, average daily traffic volume, truck traffic, etc.

(5) In special circumstances, as may be specifically approved/required by the city engineer, due to local conditions and/or geometric restrictions, paving widths or improvement standards may be required which are different than those minimums specifically listed herein.

(6) The City intends to promote connectivity of roadways within plats and throughout the City. To facilitate future development within the City, streets and rights-of-way shall be planned to give access to or permit the future subdivision of adjoining land. Streets shall be extended to the plat boundary to accommodate extensions into future subdivisions or adjoining land and the resulting temporary dead end street shall be barricaded pursuant to WSDOT standards, signed as described in Section 4.11, and provided with a temporary cul-de-sac bulb. The cul-de-sac bulb shall be paved. The inclusion of concrete curbs, gutters and sidewalks in the cul-de-sac shall be required even if it would be eliminated by future street extensions. Removal of the temporary constructed cul-de-sac bulb and construction of the extension of the curbs, gutters, and sidewalks shall be the responsibility of the developer who extends the road. In designing streets, existing development, proposed development and possible future development shall all be considered in the recommendation of right-of-way widths,
street widths, paving sections, sidewalks and other applicable standards.

(7) Street jogs with centerline offsets less than one hundred twenty-five feet are prohibited.

(8) Intersecting streets shall be laid out so that blocks between street lines are not more than one thousand three hundred twenty feet in length, except where in the opinion of the city engineer, extraordinary conditions justify a departure from the maximum.

(9) Streets shall conform to all requirements of the latest edition of the Uniform Fire Code as adopted and amended by the City, and all requirements of the Fire Marshal.

(10) In addition to the above requirements, street design shall incorporate the following minimum requirements:

(a) All new utility systems such as power, gas, cable TV, fiber optics, and telephone shall be buried, except where topography or site conditions prohibit reasonable installation. Design and installation of the system shall be done by the franchised utility company. Design shall be submitted to the city engineer for review and approval prior to installation;

(b) Roads are to be saw cut before permanent patch is made or new AC pavement is installed abutting the existing road;

(c) The street system (in residential subdivisions and short subdivisions) shall be laid out with a minimum number of intersections with arterial streets. Arterial streets shall not intersect with other arterial streets at intervals closer than one thousand three hundred twenty feet and no streets shall intersect at intervals closer than one hundred twenty-five feet, unless, in the judgment of the city engineer, an exception to this rule would be in the public interest and welfare;

(d) Streets shall be laid out so as to intersect as nearly as possible at right angles, and in any event, no street shall intersect with any other street at an angle of less than sixty 85 degrees, or more than 95 degrees.

(e) All public streets, sidewalks and alleys, both public and private, shall conform as a minimum to one of the herein referenced construction standards and shall be adjusted as necessary to match existing facilities, service the proposed development, and meet the needs of anticipated future development.

(f) All topsoil, organic, and structurally unsuitable soils shall be removed from beneath the proposed street and sidewalk section as located between the outside edge of sidewalks.

C. Submittal of Plans

(1) All street-construction plans shall be submitted to the City and shall include the following required minimum information, and as further required identified in the City’s standard plan submittal standards checklist.
STREET, PEDESTRIAN PATHS, AND BIKEWAYS

- Plan and profile;
- Street name;
- Centerline bearings;
- Centerline/baseline stationing;
- Centerline elevations every fifty feet;
- Gutterline elevations every fifty feet if not standard crown;
- Gutterline elevations around curb radii, 5 points;
- Slope shall be in percent;
- Transverse slope: Two percent standard crown (to be used unless otherwise approved/required by City);
- Longitudinal slope—see Table 1.1;
- Horizontal and vertical curves shall be required when a change of centerline grade occurs greater than one percent:
  (a) Fifty feet minimum length;
  (b) Elevations required at twenty-five feet stations and at the P.C., P.I., P.T. and low point or high point;
- Longitudinal gutterline slope;
- Pavement cross sections per City standard detail;
- Accurate locations of monuments at all centerline intersections, cul-de-sacs, P.C.’s, P.T.’s, and P.R.C.’s;
- Length and width of sidewalks and driveways;
- The location of all existing fire hydrants within 300 feet of the project shall be indicated;
- Curb and gutter;
- Wheelchair ramps;
- Illumination. (Illumination not required to be shown on same street as on plan/profile, but approval at location of miscellaneous utilities (i.e., gas, power, cable) as required. Plan shall be submitted to city engineer for approval prior to installation:
  (a) Luminaries—location, material, height and wattage.
  (b) Service cabinet—location and material.
  (c) Conduits and wire—location, material size and depth.
  (d) Junction boxes—location and material;
- Channelization and Signing:
  (a) Lane markers—location and type.
  (b) Pavement markings—location and type.
  (c) Signs—location and type.

(2) The Standard Plan Notes, as shown and further referenced in Section 5th the appendices, shall be included or referenced on any plans submitted to the City for construction approval dealing with street or drainage design.

4.03 Road Classifications

A. General

City roads are classified functionally as indicated in the Comprehensive Plan and as shown herein in Table 1.1. Function is the controlling element for classification and shall govern right-of-way, road width, and road geometrics. Other given elements such as access, arterial spacing and average daily traffic count (ADT) are typical.
B. Road Type

Roads can be characterized as “curburban” or “shoulderrural” type. An “curburban” type road typically requires vertical curb and gutter with inlets and underground storm drainage. A “shoulderrural” type road typically requires a shoulder and open ditch drainage.

(1) Land developments shall provide “curburban” type road improvements. Exceptions to this may be approved by the Director city engineer on residential local access streets which are located in long-term, low density neighborhoods where a pattern of “shoulderrural” type roads is firmly established.

(2) When “shoulderrural” type improvements are allowed, shoulders shall be a minimum 5’ wide and paved with hot mix asphalt (HMA) for principal and minor arterials and five (5’) feet wide, paved or compacted gravel for neighborhood collector and local access streets, as directed by the Director.

(3) When utilizing Low Impact Development (LID) techniques, the reduction of street and or sidewalk pavement widths will be considered so long as parking, access, and pedestrian needs are addressed.

C. Low Impact Development Street

In accordance with NMC 13.10.085 and 18.21, developers are encouraged to implement low impact development practices. A suggested cross-section drawing has been included in these standards. Developers are encouraged to propose street designs that implement the intent of low impact development using the suggested cross-section as a starting point:

(1) Reduction of pavement widths shall accommodate a minimum of two travel lanes (20 feet). The road does not need to accommodate parking for the full length, however, parking areas must be provided. Parking requirements shall be addressed in the TIA.

(2) The planting strip should be large enough to accommodate the design storm and to convey water at a non-erosive velocity downstream to the next driveway culvert (or driveway trench drain) or main inlet.

(3) Sub-surface soils should be evaluated for infiltration and the planter strip designed accordingly.
<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>PRINCIPAL ARTERIALS</th>
<th>MINOR ARTERIALS</th>
<th>NEIGHBORHOOD COLLECTORS</th>
<th>LOCAL ACCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Inter-community streets connecting largest community centers and facilities.</td>
<td>Inter/intra-community streets connecting community centers and facilities.</td>
<td>Intra-community streets connecting residential neighborhoods with community centers and facilities or other neighborhood collectors.</td>
<td>Streets providing circulation within neighborhoods with direct driveway access typically connecting to neighborhood collectors, and also permanent cul-de-sacs.</td>
</tr>
<tr>
<td>Access</td>
<td>Controlled with very restricted access to abutting properties.[2]</td>
<td>Partially controlled with infrequent access to abutting properties.[2]</td>
<td>As needed with minimal restrictions.</td>
<td>As needed with minimal restrictions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>ADT</th>
<th>Over 2000</th>
<th>Over 3000</th>
<th>1000 max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Typical road type</td>
<td>Vertical curb and gutterUrban</td>
<td>Vertical curb and gutterUrban</td>
<td>Vertical curb and gutterUrban</td>
<td>Vertical curb and gutterUrban</td>
</tr>
<tr>
<td>C. Maximum Superelevation (ft/ft) [4]</td>
<td>0.06</td>
<td>0.06</td>
<td>-N/A</td>
<td>-N/A</td>
</tr>
<tr>
<td>D. Horizontal &amp; Vertical Curvatures</td>
<td>See Table 1.2</td>
<td>See Table 1.2</td>
<td>See Table 1.2</td>
<td>225 See Table 1.2</td>
</tr>
<tr>
<td>F. Standard Stopping Sight Distance (ft) [6]</td>
<td>See Table 1.2</td>
<td>See Table 1.2</td>
<td>250 See Table 1.2</td>
<td>200 See Table 1.2</td>
</tr>
<tr>
<td>G. Standard Entering Sight Distance (ft) [7]</td>
<td>See Table 1.2</td>
<td>See Table 1.2</td>
<td>400 See Table 1.2</td>
<td>430 See Table 1.2</td>
</tr>
<tr>
<td>H. Minimum Pavement Width (ft) [8]</td>
<td>2 lanes</td>
<td>32</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>3 lanes</td>
<td>44</td>
<td>44</td>
<td>-N/A</td>
</tr>
<tr>
<td></td>
<td>4-5 lanes</td>
<td>varies</td>
<td>-varies</td>
<td>N/A</td>
</tr>
<tr>
<td>I. Minimum Right-of-Way Width (ft) [8]</td>
<td>100</td>
<td>84</td>
<td>60</td>
<td>48</td>
</tr>
<tr>
<td>J. Bike Lane Width (ft) [9]</td>
<td>5</td>
<td>5</td>
<td>-N/A</td>
<td>-N/A</td>
</tr>
<tr>
<td>K. Parking Lane Width (ft) [9]</td>
<td>-N/A</td>
<td>-N/A</td>
<td>6-8 As required</td>
<td>6-8 N/A</td>
</tr>
<tr>
<td>L. Planting Buffer Strip Width (ft)</td>
<td>5-9 min.</td>
<td>5-9 min.</td>
<td>5 min.[10]</td>
<td>4 min.</td>
</tr>
</tbody>
</table>

NOTES TO TABLE 1.1:

1. Within the above parameters, geometric design requirements shall be determined for specific arterial roads consistent with AASHTO.
2. Direct access allowed only if no other access potential exists. (See Section 4.23, Driveways)
3. Design speed serves as a basis for determining geometric elements of new roads and does not imply posted or legally permissible speeds. Curves shall be designed within parameters of B, C, and D in Table 1.1. Design speeds on existing roads is 5 MPH over the posted speed limit or as tabulated above, whichever is less.
4. Superelevation may be used, upon approval of the city engineer.
5. Maximum grade may be exceeded for short distances of 300 feet or less, upon showing that no practical alternative exists. Grade shall not exceed 20 percent. All roads with grades exceeding 15 percent shall be paved with Portland cement concrete.
6. Standard stopping sight distance (SSD) shall apply unless otherwise approved by the city engineer.
7. Standard entering sight distance (ESD) shall apply at intersections and driveways unless otherwise approved by the city engineer.
8. Based on special needs of a specific project or location, the City may require additional width to accommodate on-street parking turn pockets, or increased truck traffic.
9. Bike lanes shall be marked in accordance with City requirements. Parking lanes shall not be marked as such unless required by the City. Parking lanes may be required in commercial areas or other high-use pedestrian areas, as needed and as identified in other planning documents.
10. Planter strips on Neighborhood Collectors may narrow to zero to accommodate turn lanes.
11. Sidewalk width may be increased in commercial areas or other high-use pedestrian areas, as needed and as identified in other planning documents.

### Table 1.2 STREET DESIGN VALUES

<table>
<thead>
<tr>
<th>Design Speed (mph)</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Curvature, Radius, (Feet)</td>
<td>180</td>
<td></td>
<td>300</td>
<td>460</td>
<td></td>
</tr>
<tr>
<td>Stopping Sight Distance (Feet)</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>325</td>
<td>400</td>
</tr>
<tr>
<td>Entering Sight Distance (Feet)</td>
<td>652</td>
<td>430</td>
<td>490</td>
<td>555</td>
<td>620</td>
</tr>
<tr>
<td>Residential Driveway ESD</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>325</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Local access streets that terminate in a permanent cul-de-sac or form shot loops off an adjacent local access street may use the following minimum centerline radius:
   - Up to 75 degree curve delta – 100 feet
   - 75 degree curve delta and over – 55 feet
2. Horizontal curvature to be designed by Engineer.
3. Driver eye height = 3.5 feet, object height = 2.0 feet, distances require adjustment per AASHTO for grades greater than 3 percent.
4. Driver eye height = 3.5 feet, measured 10 feet back from face of curb or edge of traveled land. Object height = 4.25 feet, distances require adjustment per AASHTO for approach grades greater than 3 percent. Entering sight distance for right turns may be reduced per AASHTO.

### 4.04 Street Frontage Improvements

A. All industrial, commercial, and residential development, as well as, long and short plat shall install street frontage improvements at the time of construction. Such improvements shall include vertical concrete curb and gutter, concrete sidewalk, street storm drainage, street lighting system, utility relocation, landscaping and irrigation, undergrounding aerial utilities and street pavement widening all per these Standards. Plans shall be prepared and signed by a licensed engineer currently registered in the State of Washington.

B. All frontage improvements shall be made across the full frontage of the property.

C. Exceptions:
(1) When the proponent requests that the Director evaluate if the required frontage improvements cannot be reasonably performed due to unique conditions, the Director will consider a request from the proponent that an “equal” and voluntary monetary amount be deposited with the City and retained by the City for such use per applicable RCW’s. The equivalent cost shall be approved by the City and include design, administration, and construction costs.

(2) When improvements cannot be reasonably accomplished in a timely manner a recorded agreement (performance surety or equal) on forms provided by the City shall be completed which provide for these improvements to be installed at a later date by the proponent.

(3) Urban Residential short plats creating only one additional lot to a tax lot with an existing dwelling unit are exempt from providing “curb and gutter urban” type street improvements, but are subject to “shoulder rural” type improvements provided these are consistent with the surrounding roads.

D. Right-of-way shall be conveyed to the City on a recorded plat or by a right-of-way dedication deed. All costs of same to be borne by the property owner/developer.

4.05 Private Streets

A. General

While community street requirements are usually best served by public streets, owned and maintained by the City, private streets may be appropriate for some local access streets.

B. Approval

Private streets may be approved by the Director only when they are:

(1) Permanently established by right-of-way, tract or easement providing legal access to each affected lot, dwelling unit, or business and sufficient to accommodate required improvements, to include provision for future use by adjacent property owners when applicable; and

(2) Built to City of Newcastle standards, as set forth herein, or secured under the provisions of the subdivision regulations; and

(3) Accessible at all times for emergency and public service vehicle use (this provision precludes to use of gates on private streets); and

(4) Not obstructing, or part of, the present or future public neighborhood circulation plan developed in processes such as the City of Newcastle comprehensive plan, or capital improvement program; and

(5) Not going to result in land locking of present or future parcels; and
(6) Not needed as public roads to meet the minimum road spacing requirements of these standards; and

(7) Designed to serve a maximum potential of 13 single-family dwelling units when the entire length of the private road system to the nearest public road is considered. The maximum potential is the number of dwelling units that can possibly be served by the road when physical barriers, zoning or other legal constraints are considered; and

(8) Maintained by a capable and legally responsible owner or homeowners’ association or other legal entity made up of all benefited property owners, under the provisions of the applicable codes. The City of Newcastle will neither maintain (including snow & ice removal) nor repair private streets; and

(9) Clearly described on the face of the plat, short plat, or other development authorization and clearly signed at street location as a private street, for the maintenance of which the City of Newcastle is not responsible.

(10) Private roads will not be eligible for capital improvement projects or other small projects which are funded and managed using City resources.

C. Acceptance of Private Streets

The City of Newcastle will not accept private streets for maintenance as public streets until such streets are brought into conformance with current City standards. The private owner(s) bear the responsibility of these costs and will not utilize City funds for such improvements or alterations. This requirement will include the hard surface paving of any streets originally surfaced with gravel.

The City of Newcastle will not accept private streets within short plats when the roads providing access to the plat are private and already have the potential to serve more than the number of lots specified in subsection 4.05 B.(7). Short plats proposed on properties to which the access is over private streets that do not meet the standards in this section shall be denied.

4.06 Cul-de-sacs, Hammer-heads, and Eyebrows.

A. Whenever a cul-de-sac street serves more than six lots or extends more than 150 feet from centerline of accessing street to farthest extent of surfaced traveled way a widened “bulb” or hammerhead shall be constructed as shown in the drawings.

B. Any permanent cul-de-sac shall not serve more than 13 potential single family dwelling units and shall not be longer than 600 feet measured from centerline of intersecting street to the center of the bulb section. Proposed exceptions to this rule will be considered by the city engineer based on pertinent traffic planning factors such as topography, sensitive-critical areas and existing development. The cul-de-sac length may extend to 1,000 feet if 12 or fewer potential single family dwelling units are to be served and there is provision for emergency turnaround near mid-length.
C. The city engineer or Director may require an off-street walk or an emergency vehicle access to connect a cul-de-sac at its terminus with other streets, parks, schools, bus stops, or other pedestrian traffic generators, if the need exists.

D. If a street temporarily terminated at a property boundary serves more than six lots or is longer than 150 feet, a temporary bulb shall be constructed near the plat boundary. The paved bulb shall be 70 feet in diameter. Removal of the temporary cul-de-sac and reconstruction of the street and extension of the sidewalk shall be the responsibility of the developer who extends the road. Reconstruction shall include demolition and wastehaul of all temporary improvements, grading and subgrade preparation, extension and installation of storm drainage (if required), curbs, gutters, sidewalks, and other improvements to make for a complete and whole street section.

E. The maximum cross slope in a bulb shall not exceed six eight percent.

F. Use of a “hammer head” turnaround shall not may be used, only with an approved variance, to serve up to 9 lots. Hammerheads shall only be used in place of a bulb when site constraints (critical areas, slope, etc.) preclude the practical use of a bulb and shall only be used as an emergency turnaround where required by the Fire Marshal.

4.07 Intersections

A. Traffic control devices will be as specified in the Manual on Uniform Traffic Control Devices (MUTCD) or as may be specifically modified by the City Public Works Director as a result of appropriate traffic engineering studies.

B. Street intersections shall be laid out so as to intersect as nearly as possible at right angles, and in any event, no street shall intersect with any other street at an angle of less than 85, or more than 95 degrees. Sharp angled intersections shall be avoided. For reasons of traffic safety, a “T” intersection (three-legged) is preferable to the cross-road (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 intersecting streets;

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

C. 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 neighborhood collector or 20 feet approaching an local access street, measured from nearest right-of-way line (extended) of intersected street.
D. Spacing between adjacent intersecting streets, whether crossing or T-connecting, shall be as follows:

<table>
<thead>
<tr>
<th>When Highest Classification involved is:</th>
<th>Minimum centerline offset shall be:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal arterial</td>
<td>1000 feet</td>
</tr>
<tr>
<td>Minor arterial</td>
<td>500 feet</td>
</tr>
<tr>
<td>Neighborhood Collector</td>
<td>300-240 feet</td>
</tr>
<tr>
<td>Local Access</td>
<td>100-125 feet</td>
</tr>
</tbody>
</table>

E. Curb radii at intersections shall be 35 feet for any street connecting to a Principal Arterial and 25 feet at all other intersections. Minimum right-of-way radius shall be 25 feet.

4.08 Half Streets

A. A half-street improvement is typically constructed as a partial street along the common side property line of a developing parcel, when the adjacent parcel is undeveloped or underdeveloped. The intent is to have the first developing parcel establish the location of the street that will eventually serve both parcels. As such, a minimum street must be provided to serve the first developing parcel. The adjacent parcel will complete the other half of the street at a later date, when it is developed. A half street may be permitted as an interim facility when:

1. Such street shall not serve as primary access to more than 20 dwelling units or tax lots; and
2. Such alignment is consistent with or will establish a reasonable circulation pattern; and
3. There is reasonable assurance of obtaining the prescribed additional right-of-way from the adjoining property with topography suitable for completion of a full-section road, in the future.

B. Insufficient Roadway Width: Proposed frontage improvements shall not diminish the existing roadway width on the opposite side of an abutting roadway. If construction of the developer’s required frontage improvements will result in the narrowing of the roadway on the opposite side of the abutting roadway, the developer shall construct improvements on the opposite side to replace and/or increase the width as follows:

1. Grade and pave a driving lane of at least 11 feet in width, plus any existing additional/auxiliary lanes, plus a five-foot wide paved shoulder.
2. Grade and replace/relocate any existing drainage ditches in accordance with the Standards.
3. Re-locate any utilities and/or utility poles/structures determined to be in a hazardous or non-maintainable location.

Also, where no improvements exist in the one-half right-of-way (or future right-of-way) opposite the subject property, the developer shall expand their frontage improvements and construct “half-street” improvements to include at least an 18-foot wide driving surface from the face of curb.
No requirements in this section shall force the developer to obtain or acquire a dedication of additional right-of-way or easements from another property owner.

4.09 One-way Streets.

Local access streets, including loops, may be designated one-way upon a finding by the city engineer that topography or other site features make two-way traffic impractical.

4.10 Bus Zones and Turn-outs.

During the design of arterials and neighborhood collectors, the designer shall contact the service provider, and the local school district to determine bus zone (stop) locations and other bus operation needs. The road project shall provide wheelchair accessible landing pads at designated bus zones as per Americans with Disabilities Act (ADA) and where required shall include turn-outs and shelter pads. Pedestrian and wheelchair access improvements within the right-of-way to and from the bus loading zone or turn-out from nearby businesses or residences shall also be provided as part of the road improvement. Surfacing requirements may also be affected, particularly on shoulders. Metro’s publication, “Metro Transportation Facility Design Guidelines,” is applicable.

4.11 Access and Circulation Requirements.

A. A future street plan shall:

(1) Be filed by the applicant in conjunction with an application for a subdivision or development, when required by the city engineer. The plan shall show the pattern of existing and proposed land division and shall include other parcels within one-quarter mile surrounding and adjacent to the proposed land division. At the applicant’s request, the City shall prepare a future streets proposal. A street proposal may be modified when subsequent subdivision proposals are submitted.

(2) Identify existing or proposed bus routes, pullouts or other transit facilities, bicycle routes and pedestrian facilities on or within 500 feet of the site.

B. All local access and neighborhood collector streets which abut a development site shall be extended within the site to provide through circulation when not precluded by environmental or topographical constraints, existing development patterns or strict adherence to other portions of the City standards. A street connection or extension is considered precluded when it is not possible to redesign or reconfigure the street pattern to provide required extensions. In the case of environmental or topographical constraints, the mere presence of a constraint is not sufficient to show that a street connection is not possible. The applicant must show why the constraint precludes some reasonable street connection.

C. The location, width and grade of all streets shall conform to the approved street plan and shall be considered in their relation to existing and planned streets, to topographic conditions, to public convenience and safety, and in their appropriate relation to the proposed use of the land to be served by such
streets. Such a plan shall be based on the type of land use to be serviced, the volume of traffic, the capacity of adjoining streets and the need for public convenience and safety.

D. Where the location of a street is not shown in an approved street plan, the arrangement of streets in a development shall either:

1. Provide for the continuation or appropriate projection of existing streets in the surrounding areas, or;

2. Conform to a plan adopted by the City Council if it is impractical to conform to existing street patterns because of topographical or other existing conditions of the land.

E. All development shall provide an internal network of connecting streets that minimize travel distances within the development.

F. Minimum separation of 125 feet between local access and neighborhood collector street intersections is required.

FG. Where necessary to give access or permit a satisfactory future division of adjoining land, streets shall be extended to the boundary lines of the tract property to be developed, and

1. These extended streets or street stubs to adjoining properties are not considered to be permanent cul-de-sacs since they are intended to continue as through streets at such time as the adjoining property is developed. A temporary cul-de-sac shall be constructed in accordance with Section 4.06.

2. A barricade shall be constructed at the end of the street by the developer which shall not be removed until authorized by the city engineer, the cost of which is to be included in the street construction cost. The sign shall read:

THIS STREET TO BE EXTENDED WITH FUTURE DEVELOPMENT BEYOND THIS POINT.

4.12 Reserved. Second Access Requirements.

In order to provide a second access to a residential subdivision, short subdivision, binding site plan or planned unit development, no residential street shall serve as an access street to any development of more than 50 lots or dwelling units unless the access street is connected in at least two locations with other streets that have a vehicle carrying capacity (ADT in Table 1.1) the same as or greater than the access street. A residential development access road may be separated by a median, but the median separation may not constitute or substitute for a second access.

The second access requirement may be satisfied through use of connecting a new street to an existing street in an adjacent neighborhood if:
(a) No other practical alternative exists; or
(b) Existing street was previously stubbed indicating intent for future access; or
(c) An easement has been recorded specifically for said purpose.

These provisions are not intended to preclude the state statute on land locking. This section does not preclude a commercial project from gaining access through a residential development. Traffic impacts for such projects will be analyzed during the SEPA process.

4.13 Access Requirements.

A. In order to provide for increased traffic movement on arterial and neighborhood collector streets and to eliminate turning movement conflicts, the director city engineer may restrict the location of driveways on streets and require the location of driveways be placed on adjacent streets upon the finding that the proposed access would:

   (1) Cause or increase existing hazardous traffic conditions; or
   (2) Provide inadequate access for emergency vehicles; or
   (3) Cause hazardous conditions to exist which would constitute a clear and present danger to the public health, safety, and general welfare.

B. In order to eliminate the need to use public streets for movements between commercial or industrial properties, parking areas shall be designed to connect with parking areas on adjacent properties unless not feasible. The city engineer shall require access easements between properties where necessary to provide for parking area connections.

C. In order to facilitate pedestrian and bicycle traffic, access and parking area plans shall provide efficient sidewalk and/or pathway connection between neighboring developments or land uses.

D. Proposed streets or street extensions shall be located to provide direct access to existing or planned transit stops or other neighborhood activity centers, such as schools, shopping areas, and parks.

4.14 Street Names

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

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 numbers are placed clearly and visibly at the main entrance to the property or at the principal place of ingress.
4.15  **Signing**

A street sign/pavement marking plan shall be prepared by the developer and submitted for review to the city engineer. Upon approval and at the appropriate time, the City shall direct King County to install the signs, as approved. The developer is responsible for providing payment to the City/King County for all required sign/pavement marking installations. Traffic control signing shall comply with the provisions as established by the U.S. Department of Transportation Manual on Uniform Traffic Control devices (MUTCD).

Street designation signs, including poles and hardware, will be installed by the developer. Street designation signs shall display street names or grid numbers as applicable.

4.16  **Slope, Wall, and Drainage Easements and right-of-way reduction.**

A. **Easements.** Either the functional classification or particular design features of a road may necessitate slope, sight distance, wall, or drainage easements beyond the right-of-way line. Such easements may be required by the city engineer or Director in conjunction with dedication or acquisition of right-of-way.

4.17  **Pavement Markings, markers, and pavement tapers.**

Pavement markings, markers or striping shall be used to delineate channelization, lane endings, crosswalks and longitudinal lines to control or guide traffic per MUTCD. All pavement markings shall be designed by the developer and submitted for review to the city engineer. Upon approval and at the appropriate time, the City shall direct King County to install the markings, as approved. The developer is responsible for payment to the City/King County for all required marking installations. Channelization plans or crosswalk locations shall be approved by the traffic city engineer.

4.18  **Sight Obstruction**

All new development shall design and construct streets, driveways, and street intersections in accordance with the sight distance criteria for entering sight distance (ESD) and stopping sight distance (SSD) as specified in Table 1.1 and Table 1.2.

In addition, per this section, the triangular area identified by the required sight line (as described in Table 1.1 and Table 1.2) for all existing and proposed street intersections shall be kept clear of obstructions between 42 inches and ten feet above the existing surface of the street.

The following sight clearance requirements take into account the proportional relationship between speed and stopping distance.

The sight distance area is a clear-view triangle formed on all intersections by extending two lines of specified length (A) and (B) as shown below 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 detail at the end of these Standards. The area within the triangle shall be subject to restrictions to maintain a clear view on the intersection approaches.
Sight Distance Triangle:

Stop or Yield Controlled Intersection:

<table>
<thead>
<tr>
<th>Speed Limit</th>
<th>(A) Major Street</th>
<th>(B) Minor Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mph</td>
<td>200</td>
<td>*</td>
</tr>
<tr>
<td>25 mph</td>
<td>250</td>
<td>*</td>
</tr>
<tr>
<td>30 mph</td>
<td>300</td>
<td>*</td>
</tr>
<tr>
<td>35 mph</td>
<td>350</td>
<td>*</td>
</tr>
<tr>
<td>40 mph</td>
<td>400</td>
<td>*</td>
</tr>
</tbody>
</table>

* Sight distance measured from a point on the minor road 15 feet from the edge (extended) of the major road pavement and measured from a height of eye at 3.50 feet on the minor road to height of object at 4.25 feet on the major road.

Uncontrolled Intersection:

<table>
<thead>
<tr>
<th>Speed Limit</th>
<th>(A) Major Street</th>
<th>(B) Minor Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mph</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>25 mph</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>30 mph</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>35 mph</td>
<td>155</td>
<td>155</td>
</tr>
<tr>
<td>40 mph</td>
<td>180</td>
<td>180</td>
</tr>
</tbody>
</table>

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 10 feet above the existing surface of the street.

Exclusions. Sight obstructions that may be excluded from these requirements include: utility poles, regulatory signs, trees trimmed from the base to a height of 10 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 preexisting buildings.

4.19 Illumination

Illumination shall be provided on all new streets and at all intersections, as specified herein. Illumination intensity and uniformity shall generally conform with current Illuminating Engineering Society of North America (IESNA) RP-8 standards for urban streets, based on low pedestrian area classification, unless specified otherwise. All illumination shall be designed and constructed using materials as specified by the local electrical utility, except as otherwise designated by the City.
A. Continuous illumination will be required for channelization accommodating additional lanes including the tapers. Illumination will also be required as identifiers where roads intersect arterials or for frequently used pedestrian areas on arterials.

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

C. Illumination intensity and uniformity shall conform with current IES standards for urban streets. Luminaire fixtures shall be consistent with fixtures maintained by the local electrical utility.

D. All illumination shall be designed and constructed using materials as specified by the local electrical utility. Illumination shall be provided on all streets.

E. The standard luminaire shall be with a Type III medium cutoff distribution and a flat glass refractor. The standard luminaire shall be as specified by the local electrical utility. As an alternative, illumination may be provided from existing utility poles, with permission from the city engineer. The city engineer may require that analysis of light and glare be provided to show that any extra illumination beyond these standards will not have a significant adverse impact on existing land uses in the area. Energy efficient fixtures shall be required.

D. Illumination shall be provided as follows for typical low pedestrian use classification:

<table>
<thead>
<tr>
<th>Street Classification</th>
<th>Average Lighting Foot-candles</th>
<th>Uniformity Ratio Avg/Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Arterial (Urban)</td>
<td>0.9</td>
<td>3:1</td>
</tr>
<tr>
<td>Principal Arterial (Rural)</td>
<td>0.6</td>
<td>4:1</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>0.6</td>
<td>4:1</td>
</tr>
<tr>
<td>Neighborhood Collector</td>
<td>0.4</td>
<td>6:1</td>
</tr>
<tr>
<td>Local Access/Half-Street</td>
<td>0.4</td>
<td>6:1</td>
</tr>
</tbody>
</table>

Some areas are classified as high or medium pedestrian areas, as determined by the city engineer. Higher levels of illumination will be required in those areas classified as high or medium pedestrian use, such as transit stops and mid-block crossing (high use), roadways and trails serving schools (high use), intersections (medium use), and commercial areas, including apartments/condominiums (medium use). In these cases, the average lighting (fc) would be as follows:

<table>
<thead>
<tr>
<th>Street Classification</th>
<th>Medium Use Average Lighting Foot-candles</th>
<th>High Use Average Lighting Foot-candles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Arterial (Urban)</td>
<td>1.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Principal Arterial (Rural)</td>
<td>1.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>0.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Neighborhood Collector</td>
<td>0.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Local Access/Half-Street</td>
<td>0.4</td>
<td>0.4</td>
</tr>
</tbody>
</table>
4.20 **Traffic** Signals

Signalization will be required if warranted as determined by an existing study and/or transportation study performed by the Developer at the request of the City. **Prior to project permit issuance**, the developer shall pay the entire cost of signalization if signalization is warranted, or wait until the City has procured sufficient monies to cause signalization improvements at the intersection(s). All components of the signals shall become property of the City.

4.21 **Parking Lots**

Storm water detention shall be provided and shall follow the criteria as set forth in Chapter 5 of these standards.

Six (6) 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 for approved surface material types. **Porous asphalt, permeable concrete, permeable interlocking concrete pavers, and grid pavements may also be utilized in parking lot surfacing as allowed by adopted LID standards.** **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 Engineer determines the grass/paving system is not appropriate for the specific application, alternate approved surfacing materials shall be utilized.

4.22 **Survey Staking**

All surveying and staking shall be performed by an engineering or surveying firm employed by the Developer and capable of performing such work. The engineer or surveyor performing and directing such work shall be currently licensed by the State of Washington to perform said task.

**General construction inspection by the City shall not be considered approval of the staking nor relieve the contractor’s responsibility to install infrastructure improvements in accordance with approved plans.**

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

(b) Stake top of ballast and top of crushed surfacing at centerline and edge of pavement every 25 feet.

(c) Stake top back of curb at a consistent offset for vertical and horizontal alignment.

4.23 Driveways

Driveways are used to provide vehicle access from the public right-of-way to a building or interior portion of a parcel. Within the right-of-way, a driveway “entrance” provides a transition from the street to the driveway. The entrances are typically constructed of cement concrete on an “urban” type street or asphalt/gravel on a “rural” type roadway. The driveway from the entrance into the parcel is constructed of cement concrete, asphalt, gravel, or pavers. The requirements of this section apply to both driveway entrances and that portion of the driveway located on private property.

A. General

   (1) Driveway entrance details are located at the end of these Standards. Driveway entrances shall be constructed in accordance with Section 8-06 of the Standard Specifications.

   (2) All abandoned driveway entrance areas on the same frontage shall be removed and the curbing and sidewalk or shoulder and ditch section shall be properly restored, at the Property Owner’s expense.

   (3) Maintenance of driveway approaches and culverts shall be the responsibility of the owners whose property they serve.

   (4) A right-of-way use permit shall be required for any work within the public right-of-way or otherwise involving a driveway entrance, and may require the entrance to be upgraded for ADA. No person shall begin work on the construction, alteration, or removal of any driveway or the paving of any parking strip on and/or adjacent to any street, alley or other public place in the City without first obtaining a permit from the City. Exceptions to permit acquisition requirements may be granted at the discretion of the Public Works Director.

   (5) Existing driveways may be reconstructed or repaired as they exist provided such reconstruction is compatible with the adjacent road. A right-of-way use permit shall not be required for driveway reconstruction or repair.

   (6) Notwithstanding any other provisions, driveways will not be allowed where they are prohibited by separate City Council action or where they are determined by the city engineer or Director to create a hazard or impede the operation of traffic on the roadway.
B. Location and Width of New Driveways.

(1) A residential driveway shall typically serve only one parcel. A driveway serving more than one parcel shall be classed as a commercial driveway or a joint use driveway, except as provided in subsections (2)(a) and (2)(b) of this section.

(2) No portion of a driveway width entrance shall be allowed within five feet of side property lines where it intersects with the street right-of-way line in residential areas or nine feet in commercial areas except as follows:

(a) A joint use driveway tract may be used to serve a maximum of two three parcels:

(i) Minimum tract width shall be 22 20 feet with a 2418-foot paved surface, cross slope in one direction and curb or thickened edge on one side, or designed as an inverted crown. Minimum tract length shall be 20 feet from right-of-way line. The remaining eight feet of width (four feet on each side) of the tract area shall be used for landscaping purposes.

(ii) Driving surface shall be paved, with a paved apron entrance from the edge of pavement (or curb) of intersecting street to right-of-way line.

(iii) The Director city engineer may allow use of an easement if the only access to a serving roadway is through an adjacent parcel not owned by the applicant.

(b) Existing driveways may utilize full width of narrow “pipe-stem” parcels or easements if approved by Director the city engineer.

(3) Grade transitions, excluding the tie to the roadway, shall be constructed as smooth vertical curves. The maximum change in driveway grade, shall be eight percent within any 10 feet of distance on a crest and 12 percent within any 10 feet of distance in a sag vertical curve. Driveway shall be graded to match into possible future widened road section without encroachment into graded shoulder or sidewalk. The design engineer for proposed developments shall consider the access driveway profile when designing the serving road to ensure that required grade transitions can be complied with considering building setback and lot terrain conditions. A drawing showing the grade transitions shall be required to be submitted to the City at the time of building permit approval.

(4) Driveway entrances in rolled curb sections may be constructed abutting and flush with sidewalk or back of curb without gapping or lowering height of curb.

(5) No driveway apron entrances shall extend into the street further than the face of the curb.
(6) Every driveway must provide access to a garage, carport, parking area or other structure on private or public property requiring the entrance of vehicles. No public curb shall be cut unless a driveway is installed.

(7) No driveway entrance shall be located as to create a hazard to pedestrians, bicyclists or motorists or to invite or compel illegal or unsafe traffic movements.

(8) No driveway entrance or driveway shall be constructed in such a manner as to be a hazard to any existing street lighting standard, utility pole, traffic regulating device or fire hydrant. At a minimum all portions of the driveway entrance shall be located five (5’) feet from these and similar appurtenances. The cost of relocating any such street structure when necessary to do so shall be paid by the abutting property owner. The relocation of any street structure shall be allowed with the specific written approval of the Owner of the structure involved.

(9) No driveway access shall be allowed onto an arterial street within 150 feet of the nearest right-of-way line of an intersecting street. No driveway shall be located within 20 feet of a crosswalk.

C. Dimensions, Slope, Details

(1) Except as otherwise provided, the width of any residential driveway shall not exceed twenty (20’) feet (exclusive of the asphalt taper, if applicable). The maximum width for any commercial driveway shall be thirty-five (35’) feet. The city engineer may authorize additional residential driveway widths for three-car garages, but no residential driveway shall be wider than 30 feet.

(2) The width of any driveway shall not be less than ten (10’) feet, exclusive of the asphalt taper, if applicable.

(3) The length of any driveway shall not exceed one hundred fifty feet, without approval of the city engineer.

(4) Driveway slopes or grades shall not exceed eight-twelve percent unless otherwise authorized/approved by the city engineer in writing. A drawing shall be provided showing the driveway slopes on both edges. The city engineer will consider authorizing driveway slopes exceeding eight-twelve percent, up to a maximum of twenty percent, if it is determined that:

(a) The driveway location is the only economically and environmentally reasonable alternative.

(b) The driveway will not present a traffic, pedestrian, bicycle or safety hazard.

(c) The Fire Marshal concurs in allowing the increased driveway slope.
STREET, PEDESTRIAN PATHS, AND BIKEWAYS

(d) The public health, safety and general welfare will not be adversely affected.

(e) Driveways giving direct access onto arterials may be denied if alternate access is available.

(f) A wider road approach or wider driveway width-entrance may be approved by the city engineer where a substantial percentage of oversized vehicle traffic exists, where divisional islands are required/desired, or where multiple exit or entrance lanes are needed.

(g) Parking lot circulation and signing needs shall be met on site. The public right-of-way shall not be utilized as part of a parking lot flow.

(h) Road approaches and/or ingress and egress tapers may be required in industrial and commercially zoned areas as directed by the city engineer.

(i) For driveways crossing an open ditch section, culverts shall be adequately sized to carry anticipated stormwater flows and in no case be less than 12 inches in diameter. The property owner making the installation shall be responsible for determining proper pipe size. The Director city engineer may require the owner to verify the adequacy of pipe size. Concrete pipe shall have a minimum cover of 6 inches to finish grade. All other pipes shall have a minimum cover of 12 inches.

(5) The angle between any driveway and the street shall be not less than 4560°.

(6) Generally, the two edges of each driveway shall be parallel.

(7) All driveway entrances shall be constructed over a 4-inch crushed surfacing (5/8” minus) top course. Wire mesh shall be included within all portions of driveways constructed of Portland cement concrete. Driveway entrances shall be subject to the same testing and inspection requirements as curb, gutter, and sidewalk construction. Portland cement concrete driveways shall be 6 inches thick, including the portion from the gutter to the back edge of sidewalk.

(8) Driveway approach-entrance to City streets shall be paved, unless otherwise approved by the city engineer.

D. Commercial Driveways

For commercial or industrial driveways with heavy traffic volumes or significant numbers of trucks, the Director city engineer may require construction of the access as a road intersection. This requirement will be based on traffic engineering analysis submitted by the applicant that considers, among other factors, intersection spacing, sight distance and traffic volumes. No commercial or industrial type driveway shall be constructed, if reasonably possible, where backing onto the sidewalk or street is required.
All commercial driveways shall be aligned with driveways, private roads, and public streets located on the opposite side of the street. Where compliance with this requirement is not possible, driveways shall be offset at least 100 feet from driveways, private roads, and public streets located on the opposite side of the street. Deviations from this requirement must be approved by the city engineer.

4.24 Sidewalks, Curbs and Gutters

A. General

All properties within commercial zones of the City, properties or abutting arterial streets, neighborhood collectors or local access streets shall, in conjunction with new construction, on such properties or alterations, reconstruction, or improvements of such properties, where the total cost of construction, reconstruction or remodeling in the opinion of the City warrants frontage improvements, shall be required to provide sidewalks, curbs and gutters along abutting streets, in accordance with the details provided herein. Single-family residences, not associated with short plats or long plats, shall be exempt from this requirement.

B. Design Standards

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

The City has set forth minimum standards as shown in the details which must be met in the design and construction of sidewalks, curbs and gutters. Because these are minimum standards, they may be modified by the City should the city engineer feel circumstances require variances to minimum design standards.

C. Sidewalks

(1) Arterial and Neighborhood Collector Streets. Sidewalks, curbs and gutters shall be required on both sides of all major and minor arterial streets and collector streets interior to the development. Sidewalks, curbs and gutters shall also be required on the development side of streets abutting the exterior of said development. Sidewalks shall be separated from the curb by a minimum of five (5) feet, as a landscape buffer unless otherwise approved by the Director city engineer. This landscape buffer shall be landscaped as approved by the Director city engineer and maintained by the abutting property owner(s).

The sidewalks shall vary from five (5) feet (minimum) to twelve (12) feet (maximum) in width, at the discretion of the Director city engineer, in commercial corridors, or match existing widths if greater than twelve (12) feet wide.

(2) Local Access Streets. Sidewalks shall be required on both sides of local access streets interior to the development and on the development side of access streets abutting the exterior of said development. Sidewalks shall be separated from the curb by a minimum of four (4)
feet, as a landscape buffer unless otherwise approved by the Director city engineer. This landscape buffer shall be landscaped as approved by the Director city engineer and maintained by the abutting property owner(s).

The sidewalks on local access Streets shall be five (5) feet wide.

3. The design of all sidewalks shall provide for a gradual taper rather than an abrupt transition between sidewalks of different widths or alignments. The design and construction of all sidewalks, curbs, gutters and walkways shall meet the following minimum standards:

- The width of sidewalks shall be as further shown herein. The design of all sidewalks shall provide for a gradual taper rather than an abrupt transition between sidewalks of different widths or alignments.

4. Form and subgrade inspection by the City, are required before sidewalk is poured. Monolithic pour of curb, gutter and sidewalk will not be allowed.

5. Sidewalks shall be constructed of Portland Cement Concrete, 4 inches thick (6-inches thick at driveway sections entrances or along access points for public facilities). When the sidewalk, curb and gutter are contiguous, the width of the sidewalk shall be measured from back of curb to back of sidewalk.

6. Sidewalks will be constructed on a compacted gravel crushed surfacing top or base coursebase, (Class B), or 5/8-inch minus crushed rock of suitable thickness, but no less than 2 inches, to provide a firm and unyielding base. Sidewalks will be constructed of Portland Cement Concrete as described in Section 8-14 of the Standard Specifications and be designed and constructed in compliance with those details as shown herein. Typically, in commercially zoned areas the sidewalks shall abut the curb. The Director city engineer shall be at liberty to vary sidewalk dimensional characteristics and location to meet localized or existing conditions.

The sidewalk thickness shall be as follows:

<table>
<thead>
<tr>
<th>SIDEWALK LOCATION</th>
<th>SIDEWALK THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical sidewalk</td>
<td>4” thick</td>
</tr>
<tr>
<td>Driveway sections and access points to public facilities</td>
<td>6” thick</td>
</tr>
</tbody>
</table>

The sidewalks will be divided into five foot lengths by contraction joints and expansion joints will be at intervals of no more than 15 feet. Joints shall be filled with an asphalt mastic material.

7. For driveway requirements, see Section 4.23.
D. Curb and Gutter

Cement concrete curb and gutter shall be used for all street edges unless otherwise approved by the city engineer. All curbs and gutters shall be constructed of Class “B” Cement Concrete in accordance with Section 8-04 of the Standard Specifications. Curbs shall be of the vertical face type. No rolled curb and gutter profile will be allowed without specific approval of the city engineer. When rolled curbs are approved, all sidewalks abutting the rolled curb shall be a minimum 6 inches thick.

Extruded curb and gutter per WSDOT Standard Specifications is allowed only with the specific approval of the city engineer.

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

Forms, wood or steel, shall be staked securely in place, true to line and grade.

Sufficient support shall be given to the form to prevent movement in any direction, resulting from the weight of the concrete or the concrete placement. Forms shall not be set until the subgrade has been compacted within one inch of the established grade. Forms shall be clean and well oiled prior to setting in place. When set, the top of the form shall not depart from grade more than one-eighth (1/8) inch when checked with a ten-foot straightedge. The alignment shall not vary more than one-fourth (1/4) inch in ten (10) feet.

Immediately prior to placing the concrete, forms shall be carefully inspected for proper grading, alignment and rigid construction. Adjustments and repairs as needed shall be completed before placing concrete.

The subgrade shall be properly compacted and brought to specified grade before placing concrete. The subgrade shall be thoroughly dampened immediately prior to the placement of the concrete. Concrete shall be spaded and tamped thoroughly into the forms to provide a dense, compacted concrete free of rock pockets. The exposed surfaces shall be floated, finished and brushed longitudinally with a fiber hair brush approved by the City’s inspector and/or city engineer.

The face form of the curb shall be stripped at such time in the early curing as will enable inspection and correction of all irregularities that appear thereon.

Forms shall not be removed until the concrete has set sufficiently to retain its true shape. The face of the curb shall be trawled with a tool cut to the exact section of the curb and at the same time maintain the shape, grade and alignment of the curb. The exposed surface of the curb shall be brushed with a fiber hair brush.

White pigmented or transparent curing compounds shall be applied to all exposed surfaces immediately after finishing. Transparent curing compounds shall contain a color dye of sufficient strength to render the film distinctly visible on the concrete for a minimum period of four (4) hours after application.

When the curb section is to be placed separately, the surface of the gutter directly underneath the curb section shall be covered with a protective cover to
protect that area from the curing agent when the gutter is sprayed. This cover must remain in place until the curb is placed. Care shall be taken in the placing of this cover to prevent the steel dowels from puncturing the cover.

If, at any time during the curing period any of the forms are removed, a coat of curing compound shall be applied immediately to the exposed surface. The curing compound shall be applied in sufficient quantity to obscure the natural color of the concrete. Additional coats shall be applied if the City Inspector determines that the coverage is not adequate. The concrete shall be cured for the minimum period of 72 hours time set forth in Section 8-04 of the Standard Specifications.

Joints shall be constructed in the manner and at the locations shown in the drawings. They shall be cleaned and edged as shown on the drawings. All expansion and contraction joints shall extend entirely through the curb section above the pavement surface. Joint filler in the curb shall be normal to the pavement and in full but contact with pavement joint filler.

**E. Wheelchair-Curb Ramps**

All sidewalks must be constructed to provide for wheelchair-curb ramps in accordance with the current standards of applicable state law. Details provided herein are minimum and subject to change. It is the Developer’s responsibility to verify current ADA requirements and install same per current standards even if City has approved of construction drawings with non-compliant ADA requirements.

**ADA compliant curb ramps shall be installed whenever other improvements are required adjacent to or abutting an existing ramp or location that would otherwise require a curb ramp, as determined by the City. Pavement overlays shall require installation of ADA compliant curb ramps in all areas where a legal crosswalk is affected by the pavement work.**

**Wheelchair-Curb Ramps shall be constructed of Portland Cement Concrete. Form and subgrade inspection by the City are required before wheelchair-a curb ramp is poured.**

**F. Survey Staking**

The minimum staking of curb, gutter 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).

**G. Testing**

Testing shall be required at the developer’s or contractor’s expense on all materials and construction as specified in the WSDOT Standard Specifications.

At a minimum, one slump test and 2 test cylinders shall be taken once per day. All other testing frequencies shall be as specified in the Testing and Sampling Table in Section 4.34.
In addition, the City shall be notified before each phase of sidewalk, curb and gutter construction commences.

4.25 Separated Walkways, Bikeways, and Trails.

Separated pedestrian, bicycle, and equestrian facilities shall be provided where designated in the Comprehensive Plan or where required by the city engineer or Director because of anticipated significant public usage. Separated facilities are typically located on an easement, tract, or within the right-of-way when separated from the roadway by a drainage ditch or barrier. Where separated walkways, bikeways, or equestrian facilities intersect with motorized traffic, sight distance, marking and signalization (if warranted) shall be as provided in MUTCD. Facilities shall be designed as follows and constructed in accordance with Newcastle Trail Guidelines:

- Soft surface construction shall include two and one-half inches of crushed surfacing top course or wood chips over cleared and compacted native material as approved by the city engineer. Paved surface construction shall include two inches of hot mix asphalt over one and one-half inches of crushed surfacing top course over two and one-half inches of crushed surfacing base course.

A. Primary Trail. Primary trails are intended for pedestrian and bicycle use, are accessible, and located conveniently so as to connect several community facilities. Primary trails shall be paved with a minimum paved surface width of 12 feet and graded shoulders of at least two feet. Primary trails shall include provisions for signage, access, lighting, drainage, visibility, landscaping, and other necessary appurtenances as required by the City. Tract width shall be a minimum of 30 feet in width.

B. Secondary Trail. Secondary trails are intended for pedestrians and bicycles, are located so as to connect community facilities or neighborhoods or to provide access to primary trails. Secondary trails shall have a minimum width of 6 feet with 2 feet of clearance on both sides and shall be paved or soft surface, and may not be accessible along the entire length. Tract width shall be a minimum of 15 feet in width.

C. Footpaths. Footpaths are typically soft surface facilities designed for pedestrians. Such pathways shall have a minimum width of 4 feet with at least 2 feet of clearance on both sides and shall be soft surface or paved where required by the City Engineer or Director. Tract width shall be a minimum of 12 feet in width.

D. Unimproved Path. Unimproved paths are pedestrian facilities of various width dictated by use. Unimproved paths consist of native soil material.

E. All separated walkways, bikeways, and trails not located within a public park, or right-of-way shall be located in a tract dedicated to the City and identified by survey along the centerline of the tract. Survey shall be recorded at the County Assessor’s Office or described and dedicated upon final plat recording.

F. Soft surface construction shall include two and one-half inches of crushed surfacing top course or wood chips over cleared and compacted native material.
material as approved by the Engineer. Paved surface construction shall include two inches of asphalt concrete over one and one half inches of crushed surfacing top course over two and one half inches of crushed surfacing base course; or as identified in Section 4.37 for facilities located within the roadway. Provisions for drainage shall be included for all separated facilities.

G. Where located alongside individual parcels, fencing adjacent to the trail shall be open so as to allow clear visibility into the trail corridor. Fencing on adjacent properties may be required to be located a specific distance from the tract, in order to accomplish the intent of this requirement.

4.26 School Access.

School access required as part of development approval shall be provided by an asphalt walkway or concrete sidewalk unless another alternative is available and approved by the city engineer through a road variance request.

4.27 Bikeways.

Bicycle facilities shall be required in accordance with the Newcastle Comprehensive Plan – Parks, Trails, and Recreation Element and where required by separate Council action or as described in the Standards.

A. The following provisions apply to bikeways associated with roads. See City of Newcastle Trail Guidelines for separated bikeways. Bikeways are generally shared with other transportation modes, although they may be provided exclusively for bicycle use. Bikeways are categorized as described below per the WSDOT Design Manual based on degree of separation from motor vehicles and other transportation modes. This classification does not denote preference of one type over another. The planning and design of bikeways in any category shall be in accordance with Section 1020 of the WSDOT Design Manual as modified herein, and the AASHTO Guide for the Development of Bicycle Facilities, current edition. Bikeways are categorized as follows:

1. **Shared Roadway:** A roadway that accommodates bicyclists without special markings or designations. Shared roadways accommodate bicyclists by either providing a wide paved shoulder or a wide curb lane. A paved shoulder should be at least 4 feet wide to accommodate bicycle travel. A wide curb lane should have a total width of 14 feet without parking. Bike Path (Class I Bikeway). A separated paved path for the principal use of bicycles. Bike paths shall be 10 feet wide except in high usage areas or areas serving maintenance vehicles, where they shall be 12 feet wide. Graded shoulders of two feet shall be provided adjacent to the pavement.

2. **Signed Shared Roadway:** Shared roadways that are identified by signing as preferred bicycle routes. Bike Lane (Class II Bikeway). A portion of the road that is designated by pavement striping for exclusive bicycle use. Bicycle lanes may be signed as part of a directional route system. Bicycle lanes shall be five feet wide, measured from the face of curb on a curbed road and five feet wide, measured from the edge of the traveled way (painted lane stripe) on a shouldered road. Bike lanes shall be provided on all arterials and
where designated in the Parks, Trails, and Open Space Comprehensive Plan.

(3) Bike Lanes: A portion of the road that is designated by pavement striping for exclusive bicycle use. Bicycle lanes may be signed as part of a directional route system. Bicycle lanes are 5 feet wide on a curbed road and a minimum of 4 feet wide as a shoulder bike lane. Bike lanes shall be provided on all arterials and where designated in the Comprehensive Plan. Bike Routes - (Class III Bikeway). A road that provides a widened paved outer lane to accommodate bicycles in the same lane as motor vehicles. These widened lanes may also be used for parking where allowed. Lane width shall be increased at least three feet. In areas of high turnover for onstreet parking, a Bike Lane may be required. Typically, Bike Routes shall be designated by signs and shall connect to higher use bicycle facilities. Bike Routes shall be provided, but not necessarily designated by signs, on all neighborhood collectors and local access streets.

(4) Shared Use Path: Shared use paved tread trails, double track, are typically designated for bicycle and pedestrian use and in general follow a right-of-way independent of any road. Roadway With No Designation (Class IV Bikeway). All roads not categorized above where bicycles share the roadway with motor vehicles.

B. Striping and signing shall be implemented as follows:

(1) Pavement markings shall be used on bike lanes and paths according to WSDOT Design Manual and MUTCD and AASHTO Guide for the Development of Bicycle Facilities, current edition.

(2) The design of all signalized intersections shall consider bicycle usage and the need for bicyclists to actuate the signal.

4.28 Equestrian Facilities.

Equestrian facilities shall be provided where designated by the City of Newcastle Parks, Trails, and Open Space Recreation element of the Comprehensive Plan or as required by the city engineer or Director and shall not be shared with bicycles. Facilities shall be designed and constructed in accordance with Newcastle Trail Guidelines. Facilities shall be provided as follows:

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

B. A separated equestrian trail shall be constructed with an 18 percent maximum grade, 10 foot vertical clearance, 6 foot wide pathway and two feet of clearance to obstructions on both sides. The trail shall be constructed of native soil or, where drainage or erosion problems are present, a minimum of two and one-half inches of crushed surfacing top course on graded and compacted
native soil. Native soil which is not free draining shall be removed and replaced with free draining soil as necessary to provide a maintainable and well-drained subgrade. Additional crushed surfacing, cinders or other stabilizing materials shall be required if heavy usage is anticipated or if there is any evidence of instability in the subgrade; including free water, swamp conditions, fine-grained or organic soils, slides or uneven trails.

C. All equestrian trails not located within a public park, or right-of-way shall be located in a tract and identified by survey along the centerline of the tract. Survey shall be recorded at the County Assessor’s Office or described and dedicated upon final plat recording. Tracts shall be a minimum of 15 feet in width.

4.29 Side Slopes

Side slopes shall generally be constructed no steeper than 2.5:1 on both fill slopes and cut slopes. Steeper slopes may be approved by the city engineer upon showing that the steeper slopes, based on soils analyses, will be stable. Side slopes on projects funded by federal grants shall be constructed in conformance with local agency guidelines.

Side slopes shall be stabilized by grass sod or seeding or by other planting or surfacing materials acceptable to the city engineer.

4.30 Roadside Features

Miscellaneous features included herein shall be developed and constructed to encourage the uniform development and use of roadside features wherever possible. The design and placement of roadside features included herein shall adhere to the specific requirements as listed for each feature.

A preconstruction meeting shall be held with the City prior to commencing staking. All staking shall be inspected by the City prior to construction, and subject to the City’s approval.

A. Testing

Testing shall be required at the developer’s or contractor’s expense on all materials and construction as specified in the WSDOT Standard Specifications and with a frequency as specified in the WSDOT Construction Manual.

AB. Survey Monuments

(1) All existing (or new) survey control monuments and/or markers which are disturbed, lost, or destroyed during surveying or building shall be replaced with the proper monument as outlined below by a professional land surveyor currently registered (licensed) in the State of Washington at the expense of the responsible contractor, builder or developer.

(2) All streets: type: Principal Arterial or Minor Arterial Arterials; Neighborhood Collector Street;

  All street monuments shall be a A pre-cast concrete monument with cast iron monument case and cover installed per City of Newcastle
Standards is required.

If the monument case and cover are placed in cement concrete pavement, the pre-cast base will not be necessary.

(3) Street type: Local Access;

A cast-in-place concrete surface monument with sufficient ferrous metal embedded to allow for detection by a magnetic detection device per City of Newcastle standards is required.

(34) Monument Locations

Monuments shall be placed:

(a) At all street intersections;

(b) At the PC and PT’s of all horizontal curves;

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

(d) At all corners, control points and angle points around the perimeter of subdivisions as determined by the City;

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

Mailboxes

(1) During construction, existing mailboxes shall be accessible for the delivery of mail or, if necessary, moved to a temporary location. Temporary relocation shall be coordinated with the local U.S. Postal Service. The mailboxes shall be reinstalled at the original location or to a new location as may be required by the local Postmaster, as further outlined below and approved by the U.S. Postal Service.

(2) Location

(a) Bottom or base of box shall be 36” to 42” above the road surface.

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

(c) New developments. Clustered mailboxes will, in all likelihood, be required. Contact the U.S. Postal Service for details. Sidewalks shall be constructed to facilitate same.

(d) Buck-outs in sidewalks and sidewalk re-alignment may be required per the city engineer.

(3) Mailboxes shall be set on posts strong enough to give firm support but not to exceed 4 x 4 inch wood or one 1-1/2 inch diameter pipe, or
CD. Guard Rails

For purposes of design and location, all guard rails along roadways shall conform to the criteria of the “Washington State Department of Transportation Design Manual”, current edition. *Guard rails shall only be used when necessary to protect errant vehicles from exiting the roadway and striking a fixed object, entering a water body, or rolling over.*

ED. Rock Walls

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.

2. For heights over 8 feet, or walls of any height supporting an outward thrust (surcharge), or when soil is unstable, a structural wall of acceptable design stamped by an engineer currently licensed in the State of Washington shall be used.

3. A building permit shall be required for any wall over 4 feet in height or any wall supporting a surcharge, regardless of height. Materials, design and construction shall be per the Association of Rockery Contractors (ARC) Specifications, applicable engineering recommendations, Standard Specifications Section 8-24, and these standards.

4. All walls shall be subject to inspection by the City. Rock walls requiring design by an engineer, or walls over 4 feet in height shall be subject to inspection by the owner’s engineer. The owner’s engineer shall continuously inspect the installation of the wall as it progresses and shall submit inspection reports, including compaction test results and photographs taken during the construction, documenting the techniques used and the degree of conformance to the engineer’s design.

5. 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.
(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).

(6) 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 (2-4 inch) to eliminate any void sufficient to pass a 2 inch square probe.

(7) Walls will not be allowed where deemed unsafe or where, in the opinion of the city engineer, the location will result in a hazard, nuisance, or require significant maintenance.

(5) The wall backfill shall consist of quarry rock with a maximum size of 4 inches and a minimum size of 2 inches or as specified by a 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.

(6) Perforated rigid drainage pipe shall be installed as required by the City. Minimum pipe diameter shall be 4 inches. Drainage pipe shall be placed below the bottom course of rocks and shall be bedded and buried with free draining material, as shown on the drawings, up to a depth of 18 inches. The top of the wall, including the backfill shall be configured so as to prevent surface drainage from flowing over the wall.

FF. Street Trees and Landscaping Items

(1) Street trees and landscaping shall be incorporated into the design of road improvements for all classifications of roads. Such landscaping in the right-of-way shall be coordinated with off-street landscaping required on developer’s property under the provisions of Chapter 18.16 NMC, Development Standards – Tree Retention and Landscaping. Only plant species listed on the City’s approved plant list shall be used.

(2) Planting buffer strips are required along all streets, except around the bulb of cul-de-sacs. The design of planting strips must be approved by the city engineer and must include a landscaping plan in which plant maintenance, utilities and traffic safety requirements are discussed.
Where grass is approved, sod shall be installed in lieu of seeding. Prior to planting the existing sod shall be amended, or removed and replaced with suitable soil. Said landscaping plan must be approved by the Director of Public Works.

(3) Existing trees and landscaping shall be preserved where desirable and placement of new trees shall be compatible with other features of the environment. In particular, maximum heights and spacing shall not conflict unduly with overhead utilities, or root development with underground utilities.

(4) New trees shall not include poplar, cottonwood, soft maples, gum, any fruit bearing trees or any other tree or shrub whose roots are likely to obstruct sanitary or storm sewers.

(5) Property owners adjacent to landscaped buffer strips or islands shall be responsible for the maintenance of the landscaping, unless otherwise agreed to by the City.

(5) Street tree plans on bus routes shall be reviewed by local service provider.

GF. Roadside obstacles

Non-yielding or non-breakaway structures, including rockeries and retaining walls, which may be potential hazards to the traveling public shall be placed with due regard to safety. On roads with a shoulder or mountable curb, hazardous objects shall be placed as close to the right-of-way line as practicable and a minimum of 10 feet from the edge of the traveled way or auxiliary lane. On urban roads with a vertical curb section, hazardous objects shall be placed as far from the edge of the traveled way or auxiliary lane as practical. Such an object shall not be placed in a sidewalk or with the object edge nearest the roadway less than eight and one-half feet from the face of the curb in business areas or five and one-half feet from face of curb in residential areas. Placement of any utility structures shall be in accordance with requirements of Section 4.31, to include constraints on placement of poles on the outside of curves.

HG. Roadway Barricades

Temporary and permanent barricades shall conform to the standards described in Section 6C-8 of MUTCD.

4.31 Utilities

Utilities shall be furnished and installed within the right-of-way beneath new roads, or in existing roadways and rights-of-way so as to provide minimal interference with existing utilities and shall be located as generally shown in Drawings listed herein. Where existing utilities are in place, new utilities shall conform to these Standards as nearly as practical and yet be compatible with the existing installations. Exceptions may be approved by the City when necessary to meet special or localized requirements. Utilities shall be sized and designed to serve adjacent and tributary areas. Typically, utilities shall be required to be extended to “far” property lines.
Easements shall be procured and provided by the developer to facilitate same. Utilities shall not be “land locked”.

A. **Water Lines**

Water lines shall be located as required by the Coal Creek Utility District and approved by the city engineer or as follows:

- **Shoulder and Ditch Section (on existing “standard” street sections):**
  - If practical: Outside of ditch line.
  - Otherwise: In shoulder 3 feet minimum from edge of travel lane.

- **Curb and Gutter Section:** 5 feet from centerline. Mains and service connections to all lots should be completed prior to placing of surface materials. A location outside of existing roadway improvements will be considered by the City Engineer based on local conditions. This location, however, must be approved by the City Engineer.

- **Designated side of centerline:** North and East.

- **Depth:** 36” minimum pipe cover.

B. **Sanitary Sewers**

Sanitary sewers shall be located as required by the Coal Creek Utility District and approved by the city engineer or 5 feet south and west of centerline; depth 36 inches minimum from finished grade.

Sanitary and water lines shall be horizontally and vertically separated per Washington State Department of Ecology and Department of Health minimum requirements unless otherwise approved by the city engineer.

Gravity systems, whether sanitary or storm drainage, shall have precedence over other systems in planning and installation.

C. **Other Utilities**

Other utilities (gas, power, telephone, fiber optic, and cable TV) shall be located as follows:

- Utilities shall be placed underground, either side of road, at plan location and depth compatible with other utilities and storm drains, unless determined to not be practical by the city engineer. Minimum cover over such utilities shall be 36”.

- Otherwise: On existing poles (as applicable) set back of ditch line or sidewalk, at locations compatible with driveways, intersections, and other essential road features. To extent practical, utilities should share facilities so that a minimum of poles are needed, and preferably on only one side of road.

Notwithstanding other provisions, underground systems shall be located at
least 5 feet away from road centerline and where they will not otherwise disturb existing survey monumentation.

D. Utility Crossings in Existing Streets

For smaller diameter pipes and wires the crossing shall be made without surface cut of the traveled portion where the street is of oil mat or better paved. The crossing shall be made by pushing or boring a pipe under the road. Where rock is known or expected in the area of the crossing, the attempt need not be first, open cutting will be permitted, but prior approval of the City is required.

4.32 Trench Backfill and Surface Restoration

Trench restoration shall be either by a patch or patch plus overlay as required by the City, and as shown in the Drawings.

A. All trench and pavement cuts shall be made by sawcuts. The cuts shall be a minimum of 1 foot outside the trench width.

B. All trenching shall be backfilled with gravel base, bank run gravel for trench backfill, Class B suitable native excavated material, or crushed surfacing materials conforming to Section 4 of the WSDOT Standard Specifications. The trench shall be compacted to 95 percent maximum density, as described in Section 2-03 of the WSDOT Standard Specifications. The City will be the sole judge of approving materials to be utilized for backfill. Typically, crushed rock (5/8-inch minus) or control density fill (CDF) shall be placed and compacted in the trench sections for all right angle (±) street crossings.

If the existing native excavated material is determined by the City to be suitable for backfill, the contractor may use the native material except that the top 12 inches of the trench section shall be 5/8-inch minus crushed rock or other structurally suitable material as approved by the City engineer. Exceptions may be granted by the City based on site evaluation of excavated materials. All trench backfill materials shall be compacted to 95% maximum density.

Backfill compaction shall be performed in 6 inch lifts, unless otherwise approved by the City.

Replacement of the asphalt or cement concrete surfacing shall match existing asphalt or cement concrete depth, except hot mix asphalt shall be a minimum compacted thickness of 32 inches and cement concrete shall be a minimum thickness of 6 inches.

C. 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 Standard Specifications. Tack coat shall be applied as specified in Section 5-04 of the WSDOT Standard Specifications.

D. Asphalt concrete Class B Hot mix asphalt 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 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. Fine and coarse aggregate for asphalt concrete hot mix asphalt shall be in accordance with Section 9-03.8 of the WSDOT Standard Specifications. Asphalt concrete Hot mix asphalt over 2 inches thick shall be placed and compacted in equal lifts not to exceed 2 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 Inspector shall be accomplished by raking out the oversized aggregates from the Class B mix hot mix asphalt as appropriate.

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

E. All joints and cracks shall be sealed and sanded.

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

G. The final patch shall be completed as soon as possible and shall be completed within 30 days after first opening the trench. This time frame may be adjusted if delays are caused by inclement paving weather, or other adverse conditions that may exist. However, delaying of final repair is allowable only subject to the city engineer’s approval. The city engineer may deem it necessary to complete the work within the 30 days time frame and not allow any time extension. If this occurs, the Contractor shall perform the necessary work as required by the City.

4.33 Temporary Street Patching

Temporary restoration of trenches shall be accomplished by using 2” Class B Asphalt Commercial Hot Mix Asphalt (HMA) Concrete Pavement when available or 4” medium-curing (MC-250) liquid asphalt (cold mix), 3” Asphalt Treated Base (ATB), or steel plates suitable for H-20 traffic loading conditions. Steel plates shall be provided with a cold mix “lip” to accommodate a smooth transition from pavement to steel plate.

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.

All temporary patches shall be maintained by the contractor until such time as the permanent pavement patch is in place. All temporary patch materials shall be loaded and hauled to waste by the Contractor, in compliance with applicable government regulations.

If the contractor is unable to maintain a patch for whatever reason, the City will patch it at actual cost plus overhead and materials. The property owner/developer/permittee shall be invoiced for any City expenses incurred to comply with this Contractor requirement.
4.34 Material and Construction Testing

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

In addition, the City shall be notified before each phase that street construction commences (i.e., staking, grading, subgrade, ballast, base, top course, and surfacing).
<table>
<thead>
<tr>
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<th>TYPE OF TESTS</th>
<th>MIN. NO.</th>
<th>FREQUENCY</th>
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<tr>
<td>TRENCH BACKFILL</td>
<td>COMPACATION</td>
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<td>1-500 LF</td>
</tr>
</tbody>
</table>

SE = Sand Equivalency

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

The subgrade area of the street right-of-way shall be cleared of brush, weeds, vegetation, grass and debris, per Section 2-01 of the WSDOT Standard Specifications. All cleared and grubbed material shall be satisfactorily removed and disposed of properly. All depressions, or ruts, which contain water will be drained. At a minimum, the subgrade of the road shall consist of free-draining materials to a depth of 12 inches below finish grade.

The subgrade shall then be bladed and dragged to remove inequalities and secure a uniform surface. The existing subgrade will be compacted to a minimum density as defined in the WSDOT Standard Specifications and as witnessed by the City Inspector. Compaction tests may be required to be conducted at the discretion of the City to verify same. All subgrade areas shall be firm and unyielding prior to placing surfacing or base course materials.

4.36 Crushed Surfacing (Base and Top Course)

Surfacing shall consist of the construction of two or more courses of crushed stone upon an existing roadway surface, or upon a subgrade properly prepared as outlined above. Crushed surfacing material shall be uniform in quality and substantially free from wood, roots, bark and other extraneous material. It will compact into a dense and unyielding mass which will be true to line, grade and cross-section. Minimum compaction of crushed materials shall be 95 percent maximum density. The crushed materials shall meet the specifications of WSDOT Section 9-03.9(3). It shall meet the following test requirements:

Los Angeles Wear, 500 Rev. (ASTM Designation C 131) 35% Max.
Grading Requirement (% by weight)

<table>
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<th>Top</th>
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<tr>
<td>Percent Passing</td>
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<td>1-1/4” square sieve</td>
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<td>5/8” square sieve</td>
<td>50 to 80</td>
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<td>1/4” square sieve</td>
<td>30 to 50</td>
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<td>U.S. No. 40 sieve</td>
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<td>U.S. No. 200 sieve</td>
<td>7.5 Max.</td>
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<tr>
<td>(wet sieving)</td>
<td>Sand equivalent</td>
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</tbody>
</table>

Base courses and top courses shall be placed in accordance with the approved cross-section. Compaction shall be a minimum of 95% of standard density as determined by the compaction control test for granular materials. Base course rock may be composed of larger fractured rock or recycled concrete if recommended by the developer’s engineer and approved by the City Engineer.

4.37 Surfacing Requirements

All streets in the City of Newcastle will be paved with either Asphalt Concrete Hot Mix Asphalt (HMA) or Portland Cement Concrete, in strict compliance with these standards. All pavement sections shall be designed by an engineer licensed in the State of Washington. The pavement design shall meet the requirements in the latest
publication of the AASHTO Guide for Design of Pavement Structures. Any pavement shall be designed using currently accepted methodology that considers the load bearing capacity of the soils and the traffic carrying capacity requirements of the roadway. Plans shall be accompanied by a pavement thickness design based on soil strength parameters reflecting actual field tests and traffic loading analyses. The analysis shall include the traffic volume and axle loading, the type and thickness of roadway materials and the recommended method of placement.

When an existing asphalt paved street is to be widened, the edge of pavement shall be sawcut to provide a clean, vertical edge for joining to the new asphalt. After placement of the new asphalt section, the joint shall be sealed and the street overlaid, one and one half two inches, plus a prelevel course, full width throughout the widened area. The requirement for overlay may be waived by the city engineer based on the condition of existing pavement, roadway drainage, and the extent of required changes to channelization. As required by the city engineer, grinding and prelevel shall be required in order to restore the street surface to conditions equal to or better than prior to the widening work.

One soil sample per each 500 LF of centerline with 3 minimum per project representative of the roadway subgrade shall be taken by the Developer and delivered to a City approved soils lab in order to determine a statistical representation of the existing soil conditions.

Soil tests shall be performed by an engineering firm specializing in soils analysis and currently licensed in the State of Washington.

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.

Construction of streets paved with Asphalt ConcreteHot Mix Asphalt shall conform to Section 5-04 of the Standard Specifications. Pavement material will be Class “B” asphalt concrete Hot Mix Asphalt Class \( \frac{1}{2} \)" PG 64-22 and be constructed at least two three \( \frac{1}{2} \) inches thick (minimum compacted thickness) over the prepared crushed surface, top course, or asphalt treated base. Mechanical spreading and finishing will be as described in Section 5-04.3(9) of the Standard Specifications. Compaction will be performed by the equipment and methods presented in Section 5-04.3(10) of the Standard Specifications, and Surface Smoothness shall satisfy the requirement of Section 5-04.3(13) of the Standard Specifications.

Cement concrete streets will be designed and constructed as specified in Section 5-05 of the Standard Specifications. Cement concrete shall be placed over a minimum of 4 inches of compacted crushed suracing.

Permanent pavement patching will be performed as described in the pavement repair detail listed herein, and in compliance with Section 5-04 of the Standard Specifications. All fill material will be placed in lifts no thicker than six inches and mechanically compacted to 95 percent of standard density, as described in Section 2-03 of the Standard Specifications and to the satisfaction of the City Inspector.

The City has established minimum surfacing requirements, for neighborhood collectors and local access streets only. These minimum standards are to be used in
lieu of a pavement design by a licensed engineer on neighborhood collector or local access streets only and only upon approval by the city engineer:

<table>
<thead>
<tr>
<th></th>
<th>Class B Asphalt</th>
<th>Asphalt Treated Base or Crushed Surfacing</th>
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<td>Concrete Hot Mix Asphalt</td>
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<td>Local Access</td>
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<td>4&quot;</td>
<td>6&quot;</td>
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</table>
SECTION 5  STORM DRAINAGE STANDARDS

5.01 General
All development projects shall evaluate the project’s impact with respect to storm drainage and design and construct temporary measures and conduct best management practices (BMPs) necessary to prevent sediment-laden water from entering the drainage system during construction. Projects shall design and construct permanent conveyance, flow control, and water quality treatment facilities to mitigate for increased volume and rate of stormwater runoff and increased pollution in stormwater runoff from the project site. The analysis, design, implementation, and construction of necessary facilities shall be as required in NMC 13.10 and the currently adopted surface water design manual.

The standards established by this chapter are intended to represent the minimum standards for the design and construction of storm drainage facilities and to supplement NMC 13.10 and the currently adopted surface water design manual. Greater or lesser requirements may be mandated by the City due to localized conditions. Storm drainage revisions, additions, modification, or changes shall be made in compliance with City standards, ordinances, and Best Management Practices as identified in the King County Surface Water Design Manual. Adequate provisions shall be made for storm drainage, storm sewers, and associated appurtenances sufficient to transmit maximum seasonal flows and one hundred year flood waters characterized by the area. All storm drains and facilities shall be designed by a professional engineer licensed in the State of Washington.

If warranted based on the condition and capacity of the existing storm drainage infrastructure (or lack thereof) and impacts caused by the proposed development, off-site improvements may be required, at the city engineer’s discretion, to mitigate impacts caused by the proposed development.

5.02 Design Standards
All drainage facilities shall be designed and constructed in accordance with NMC 13.10 and the currently adopted surface water design manual. On-site detention systems shall be provided to ensure that stormwater flow rates following development do not exceed the pre-development flow rates. The design of storm drainage and detention systems shall depend on their type and local site conditions. The design elements of storm drainage systems shall conform to City Standards as set forth herein. The following additional design considerations shall apply:

A. The use of commercial parking lots for detention of stormwater will be reviewed by the city engineer and approved or denied based on the design, location and general parameters of the project. The detention area shall be situated away from areas of pedestrian movement unless means for rapid closing of the areas are incorporated in the design. The maximum depth of water in parking lot storage shall be limited to 6 inches. Curbs cannot be used for storage.

B. Maximum catch basin spacing shall be 200 feet on road grades up to 3%, 300 feet when the road grade is 3% or greater and 500 feet maximum on main storm drains between access structures, whether catch basins or manholes. No surface water (unless otherwise approved in writing by the City Engineer) shall cross any roadway. In addition, catch basins shall be placed whenever the length of surface drainage exceeds 300 feet on road grade, extending either direction from crest or...
sag on vertical curves.  Vaned grates shall be employed on street grades exceeding 6% slope.

C. Plans for storm drainage shall indicate where the stormwater will be discharged. If the proposed development will increase the amount of storm runoff, it must be shown that the pipes and channels downstream from the discharge point (a minimum of 1/4 mile) can carry the increased runoff without damage to the adjoining properties or surcharging of the system. Wherever possible, provisions should be made for detention and/or retention of stormwater in order to decrease the amount of storm runoff and, more importantly, to decrease the peak runoff volume.

D. Where storm drains run outside an existing public right-of-way, permanent easements will be required for public or private maintenance as may be required and warranted. Such easement shall be a minimum of 15 feet in width unless otherwise approved or required by the City. Where the City is to maintain the storm drain, a permanent easement will be required having a minimum width of 15 feet. A construction (temporary) easement of suitable width shall also be provided.

E. Storm drainage facilities located in public right-of-way or tracts dedicated to the City shall be publicly owned and maintained. The City may assume maintenance responsibility for some facilities located on private property under certain conditions. Otherwise facilities located on private property shall be privately owned and maintained with the City having right of entry for inspection. Privately owned and maintained facilities shall be constructed to the standards described herein. The owner of the facility shall be clearly defined, with documents recorded against the property’s title as prescribed in NMC 13.10. Storm Drain Detention Systems shall be, at a minimum, designed and constructed in strict compliance with the currently adopted King County Surface Water Design Manual. Local prevailing conditions may warrant higher standards as determined by the City Engineer. The Developer and/or Homeowners Association shall enter into a formal, legally binding agreement, as approved by the City Attorney, regarding the landowner’s duties and obligations regarding their ownership, operation and maintenance of any private systems.

F. The Standard Plan Notes, as shown contained in the appendices and further referenced herein shall be included or referenced on any plans submitted to the City for construction approval dealing with storm system design.

D. The City has implemented supplemental requirements for the design and construction of stormwater facilities. All stormwater facilities constructed within the city shall be constructed in accordance with these requirements, which will provide a better functioning storm drainage system that provides safe, efficient, and maintainable facilities that are aesthetically pleasing and allow for potential expansion to provide protection of the environment. Therefore, the following shall be required for construction of new stormwater facilities:

1. General
   (a) All open stormwater facilities shall be landscaped as described in...
STORM DRAINAGE STANDARDS

the currently adopted surface water design manual and as approved by the city.

(b) Stormwater facilities shall not be located where, in the city’s opinion, the facility will create an attractive nuisance or be considered as unattractive from any public street, park, or venue.

(c) When preparing the Technical Information Report and construction drawings, the engineer shall make appropriate accommodation for conveyance and bypass of upstream off-site runoff AND discharge onto adjacent downstream properties. This will include provisions for easements to accommodate upstream properties and/or constructing a tight line system across downstream properties (in an appropriate easement) where a suitable natural or previously constructed tight line system does not exist.

(d) No storm drainpipe shall be buried deeper than 20 feet except that installation to a depth greater than 20 feet can be approved to avoid the need for a pump system.

(e) Unless otherwise approved by the city, pipes shall not be located underneath sidewalks, driveways, walls, or landscaped areas except for where drainpipes cross perpendicular to these areas.

(f) Where frontage improvements are required by the city, the developer shall include them in the detention and treatment calculations and provide detention and treatment for those improvements.

(2) Detention & Treatment Facilities

(a) Underground vaults or tanks shall not be located underneath public roads or recreation facilities.

(b) Underground vaults or tanks shall not protrude above the ground surface in any location. Where site conditions warrant and the City approves a portion of a vault to extend above the ground surface, the area shall be screened with landscaping and the exposed portion shall be configured with a decorative facing approved by the City.

(c) Underground vaults shall be equipped with a hatch as described in the KCSWDM, rather than a standard manhole cover.

(d) Underground vaults and tanks shall be accommodated with
(e) Open vaults with vertical side(s) shall be prohibited.

(3) New Technology. Only those self-contained treatment devices certified by the Department of Ecology with a General Use Level Designation (GULD) will be approved. If selected, the developer shall provide proof that the associated maintenance costs do not exceed 50% of the total revenue from the stormwater utility fees or that specific project.

(4) Biofiltration

(a) Bioswales shall only be constructed where approved by the city. Specifically, bioswales shall not be constructed in areas that are shaded during the growing season or between single family residences or commercial buildings.

(b) Bioswales shall not be constructed with vertical side(s).

(c) Bioswales shall not be designed as wet swales.

(d) Bioswales shall not be designed with a longitudinal slope less than 1.5 percent.

(5) Pond Design Criteria

(a) Reserved.

(6) Easements and Dedications

(a) For privately owned and operated storm drainage systems, the developer shall execute and record a Declaration of Covenant that identifies the storm drainage system, allows access to the city to inspect and maintain, if necessary, and identifies the private owner as the party responsible for operation and maintenance.

(b) All stormwater drainage systems serving more than one parcel and not located within the public right-of-way or a dedicated drainage tract shall be located within a drainage easement granted to a specific party. All easements shall be of sufficient width to allow complete replacement of the identified storm system component without encroaching into the foundation support of nearby structures, utilities or roads.)
buildings, walls, roads, steep slopes, driveways, utilities, sidewalks, or other structures.

(c) All easements shall be provided in a form acceptable to the city and recorded at the King County assessor’s office prior to allowing the construction of a building on the property, or prior to recording of a plat. For land subdivisions, the easements may be shown on the plat map so long as the plat map identifies the specific party to which the easement is granted (grantee), the restrictions for the grantee and grantor, and clearly identifies the dimensions of the easement(s).

(d) No public storm drainage easement shall be less than 15 feet in width. Where the easement is provided to gain access to a structure (catch basin, manhole, inlets) the easement width shall not be less than 20 feet. Building setbacks shall be applied at the easement boundary.

(e) Pipes and swales not located in the center of the easement shall have at least 5 feet of easement width from the pipe or swale to the edge of the easement.

(f) Easements shall be located entirely on a single property and shall not be split along property lines.

(g) Where easements are provided between properties to convey runoff from an upstream property to a downstream conveyance system within a single project (e.g., subdivision), the conveyance system shall be installed as a requirement of the plat recording or project final approval. This will ensure that landscaping and other improvements installed on the downstream properties (where the easement is located) will not be impacted when the upstream property develops and installs its conveyance system.

5.03 Conveyance

Pipe: Storm drain pipe within a public right-of-way or easement shall be sized to carry the maximum anticipated runoff (100-year design storm) from the possible contributing tributary area.

The minimum pipe size shall be 12 inches diameter and minimum slope shall be 0.5%. Runoff shall be computed and, if the flow requires it, a larger pipe shall be used. Nothing shall preclude the City from requiring the installation of a larger sized main if the City determines a larger size is needed to serve adjacent areas or for future service.

Storm drain gradients shall be such as to assure minimum flow velocity of two feet per second when flowing full.
All pipe for storm mains shall be "pre-approved" by the city engineer based on localized conditions and comply with the Standard Specifications 7-04. Storm pipe shall be lined corrugated polyethylene pipe or solid wall PVC, unless otherwise approved by the city engineer. For above-ground steep slope pipe systems, the pipe material shall be butt fuse-welded high density polyethylene (HDPE), with energy-dissipation tee at the bottom of the slope, prior to discharge. Minimum cover over storm drain pipes shall be 2 feet.

Where storm drains run outside an existing public right-of-way, permanent easements shall be recorded for public or private maintenance as may be required and warranted. Such easement shall be a minimum of 15 feet in width unless otherwise approved or required by the City. Where the City is to maintain the storm drain, a permanent easement will be required having a minimum width of 15 feet. A construction (temporary) easement of suitable width shall also be provided.

Maximum catch basin spacing shall be 200 feet on road grades up to 3%, 300 feet when the road grade is 3% or greater, with a 500 foot maximum on main storm drains between access structures, whether catch basins or manholes. No surface water shall cross any roadway. In addition, catch basins shall be placed whenever the length of surface drainage exceeds 300 feet on road grade, extending either direction from crest or sag on vertical curves. Vaned grates shall be employed on street grades exceeding 6% slope. Through-curb inlets shall be provided in all low spots.

### 5.04 Connection to Existing Main

Connection of storm drain pipe leading from an existing street inlet location may be made into an existing main storm drain only with a new structure, subject to case-by-case review and approval of the city engineer or Public Works Field Inspector/Superintendent and subject to the following additional requirements:

- (a) The inlet structure shall be a catch basin and not a simple inlet lacking a catch or drop section.

- (b) Length of inlet connection shall be as approved by the city engineer.

### 5.05 Survey Staking

All surveying and staking shall be performed by an engineering or surveying firm employed by the Developer and capable of performing such work. The engineer or surveyor directing and/or performing such work shall be currently licensed by the State of Washington to perform said tasks.

A preconstruction 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:

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

- (b) Stake location of all catch basins/manholes and other fixtures for grade and alignment.

- (c) Stake location, size and depth of retention/detention facility.
5.06 Trench Excavation

Installation of storm drains shall be performed in accordance with WSDOT Section 7-08 of the Standard Specifications. This is supplemented by the following:

A. 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.

B. Trenches shall be excavated to the line and depth designated by the City to provide a minimum of 24 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 and in compliance with all safety requirements of the prevailing agencies. See Detail. The trench shall be kept free from water until joining is complete. Surface water shall be diverted so as not to enter the trench. The Contractor shall maintain sufficient pumping equipment on the job to ensure that these provisions are carried out.

C. 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 storm line grade. Where materials are removed from below the pipeline grade, the trench shall be backfilled to grade with material satisfactory to the City and thoroughly compacted.

D. Trenching and shoring operations shall not proceed more than 100 feet in advance of pipe laying without specific written approval of the City, and shall be in conformance with Washington Industrial Safety and Health Administration (WISHA) and Office of Safety and Health Administration (OSHA) Safety Standard.

E. The bedding course 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 facilitate the construction of pipe joints.

5.07 Bedding

Gravel backfill for pipe bedding shall be of the material as specified and installed in conformance with WSDOT Section 2-097-08 of the Standard Specifications. See Detail. Native Material shall not be used for bedding, unless approved by the city engineer.

Bedding for Rigid Pipe (Concrete or Ductile Iron Pipe):

Gravel backfill for rigid pipe bedding shall consist of crushed, processed, or naturally occurring granular material. It shall be essentially free from various types of wood.
waste or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact readily and shall meet the following specifications for grading and quality:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing*</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; Square</td>
<td>100</td>
</tr>
<tr>
<td>3/8&quot; Square</td>
<td>95-100</td>
</tr>
<tr>
<td>U.S. No. 8</td>
<td>0-10</td>
</tr>
<tr>
<td>U.S. No. 200</td>
<td>0-3</td>
</tr>
<tr>
<td>Sand Equivalent</td>
<td>35 MIN.</td>
</tr>
</tbody>
</table>

*All percentages are by weight.

Bedding for Flexible Pipe (P.V.C. pipe):

Gravel backfill for flexible pipe (P.V.C. pipe) bedding shall consist of crushed, processed, or naturally occurring granular material. It shall be essentially free from various types of wood waste or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact readily and shall meet the following specifications for grading and quality:

<table>
<thead>
<tr>
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<th>Percent Passing*</th>
</tr>
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<tbody>
<tr>
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<td>100</td>
</tr>
<tr>
<td>3/8&quot; Square</td>
<td>95-100</td>
</tr>
<tr>
<td>U.S. No. 8</td>
<td>0-10</td>
</tr>
<tr>
<td>U.S. No. 200</td>
<td>0-3</td>
</tr>
<tr>
<td>Sand Equivalent</td>
<td>35 MIN.</td>
</tr>
</tbody>
</table>

*All percentages are by weight.

Native Material shall not be used for bedding, unless approved by the Engineer.

Bedding for Flexible Pipe (H.D.P.E. pipe):

Bedding material for flexible pipe shall be a clean gravel mixture free from organic matter and conforming to the following gradation:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing*</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; Square</td>
<td>100</td>
</tr>
<tr>
<td>3/8&quot; Square</td>
<td>70-100</td>
</tr>
<tr>
<td>U.S. No. 4</td>
<td>55-100</td>
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<td>U.S. No. 10</td>
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</tr>
<tr>
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<td>10-55</td>
</tr>
<tr>
<td>U.S. No. 100</td>
<td>0-10</td>
</tr>
<tr>
<td>U.S. No. 200</td>
<td>0-3</td>
</tr>
</tbody>
</table>

*All percentages are by weight.
5.08 Backfilling

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 material shall be placed and compacted around and under the storm drain by hand tools. Special precautions should be provided to protect the pipe to a point 12 inches above the crown of the pipe. The remaining backfill shall be compacted to 95 percent of the maximum density in traveled areas, 90 percent outside driveway, roadways, road prism, shoulders, parking or other 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. Typically, trench sections crossing existing roadways, in roadway "prisms" or beneath traffic bearing areas shall be backfilled and compacted with 5/8-inch minus crushed rock. Due to localized conditions, the City may allow/permit the backfill of the trench section with suitable excavated material, as determined by the City, or if this material is not available from trenching operations, the City may order the placing and compaction of gravel base or bank run gravel for trench backfill conforming with Section 9-03.10 and 9-03.19, respectively, of the Standard Specifications (WSDOT) for backfilling the trench. All excess material shall be loaded and hauled to waste.

5.09 Street Patching and Restoration

See Chapter 4 for requirements regarding street patching and trench restoration.

5.10 Erosion Control

The detrimental effects of erosion and sedimentation shall be minimized by conforming with the following general principles:

- Soil shall be exposed for the shortest possible time.
- Reducing the velocity and controlling the flow of runoff.
- Detaining runoff on the site to trap sediment.
- Releasing runoff safely to downstream areas.

In applying these principles, the Developer and/or Contractor shall provide for erosion control by conducting work in workable units; minimizing the disturbance to cover crop materials; providing mulch and/or temporary cover crops, sedimentation basins, and/or diversions in critical areas during construction; controlling and conveying runoff; and establishing permanent vegetation and installing erosion control structures as soon as possible.

A. Trench Mulching

Where there is danger of backfill material being washed away due to steepness of the slope along the direction of the trench, backfill material shall be compacted and held in place by covering the disturbed area with straw and held with a covering of jute matting or wire mesh anchored in place.

B. Cover-Crop Seeding

A cover crop shall be sown in all areas excavated or disturbed during construction that were not paved, landscaped and/or seeded prior to construction. Areas landscaped and/or seeded prior to construction shall be restored to their original or
superior condition.

Cover-crop seeding shall follow backfilling operations.

The Developer and/or Contractor shall be responsible for protecting all areas from erosion until the cover crop affords such protection. The cover crop shall be re-seeded if required and additional measures taken to provide protection from erosion until the cover crop is capable of providing protection.

During winter months, the Contractor-Developer may postpone seeding, if conditions are such that the seed will not germinate and grow. The Developer and/or Contractor will not, however, be relieved of the responsibility of protecting all areas until the cover crop has been sown and affords protection from erosion.

The cover crop shall be sown at a rate of 10 to 15 pounds of seed per acre using a hand or power operated mechanical seeder capable of providing a uniform distribution of seed.

5.11 Adjustment of New and Existing Utility Structures to Grade

This work consists of constructing and/or adjusting all new and existing utility structures encountered on the project to finished grade.

A. Asphalt Concrete Paving Projects

On asphalt concrete paving projects, the manholes shall not be adjusted until the pavement is completed, at which time the center of each manhole lid shall be relocated from references previously established by the Developer and/or Contractor. The pavement shall be cut as further described and base material removed to permit removal of the cover. The manhole shall then be brought to proper grade.

As soon as the street is paved past each manhole, the asphalt concrete mat shall be scored around the location of the manhole, catch basin, meter boxes or valve box. After rolling has been completed and the mat has cooled, it shall be cut along the scored lines. The manholes, catch basins, meter boxes and valve boxes shall then be raised to finished pavement grade and the annular spaces filled with cement concrete to within 1-1/2 inches of the finished grade. The remaining 1-1/2 inches shall be filled with asphalt concrete Class B hot mix asphalt to give a smooth finished appearance.

After pavement is in place, all joints shall be sealed with hot asphalt cement (AR 4000W). A sand blanket shall be applied to the surface of the AR 4000W hot asphalt cement binder to help alleviate “tracking”.

Asphalt concrete patching shall not be carried out during wet ground conditions or when the ambient air temperature is below 50°F. Asphalt concrete mix Hot mix asphalt shall be at required temperature when placed. Before making the asphalt concrete repair, the edges of the existing asphalt concrete pavement and the outer edge of the casting shall be tack coated with hot asphalt cement. The remaining 2” shall then be filled with Class B asphalt concrete hot mix asphalt and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density and uniformity of grade. The joint between the patch and the existing pavement
shall then be carefully painted with hot asphalt cement or asphalt emulsion and shall be immediately covered with dry paving sand before asphalt cement solidifies. All debris such as asphalt pavement, cement bags, etc., shall be removed and disposed of by the Developer and/or his Contractor.

5.12 Finishing and Cleanup

After all other work on the project is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley, and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections of a new roadway consistent with the original section, and as hereinafter specified.

Slopes, sidewalk areas, planting areas and roadway shall be smoothed and finished to the required cross section and grade by means of a grading machine insofar as it is possible to do so without damaging existing improvements, trees and shrubs. Machine dressing shall be supplemented by hand work to meet requirements outlined herein, to the satisfaction of the City Inspector and/or the city engineer.

All excavated material at the outer lateral limits of the project shall be removed entirely. Trash of all kinds resulting from clearing and grubbing or grading operations shall be removed and not placed in areas adjacent to the project. Where machine operations have broken down brush and trees beyond the lateral limits of the project, the Developer and/or Contractor shall remove and dispose of same and restore said disturbed areas at his own expense.

Drainage facilities such as inlets, catch basins, culverts, and open ditches shall be cleaned of all debris which is the result of the Developer and/or Contractor’s operations.

All pavements and oil mat surfaces, whether new or old, shall be thoroughly cleaned. Existing improvements such as Portland cement concrete curbs, curb and gutters, walls, sidewalks, and other facilities which have been sprayed by the asphalt cement shall be cleaned to the satisfaction of the City Inspector and/or city engineer.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All graded areas shall be true to line and grade. Where the existing surface is below sidewalk and curb, the area shall be filled and dressed out to the walk. Wherever fill material is required in the planting area, the finished grade shall be elevated to allow for final settlement, but nevertheless, the raised surface shall present a uniform appearance.
SECTION 6  SANITARY SEWER STANDARDS

6.01  General

All standards regarding construction of sanitary sewers shall be per Coal Creek Utility District (CCUD) Standards. The Coal Creek Utility District can be contacted at (425) 235-9200.

6.02  Street Patching and Restoration

See Section Chapter 4 and Standard Details for requirements regarding street patching and trench restoration.

6.03  Erosion Control

See Chapter 5.10 for requirements regarding erosion control.

The detrimental effects of erosion and sedimentation shall be minimized by conforming with the following general principles:

• Soil shall be exposed for the shortest possible time.
• Reducing the velocity and controlling the flow of runoff.
• Detaining runoff on the site to trap sediment.
• Releasing runoff safely to downstream areas.

In applying these principles, the Developer and/or Contractor shall provide for erosion control by conducting work in workable units; minimizing the disturbance to cover crop materials; providing mulch and/or temporary cover crops, sedimentation basins, and/or diversions in critical areas during construction; controlling and conveying runoff; and establishing permanent vegetation and installing erosion control structures as soon as possible.

A. Trench Mulching

Where there is danger of backfill material being washed away due to steepness of the slope along the direction of the trench, backfill material shall be compacted and held in place by covering the disturbed area with straw and held with a covering of jute matting or wire mesh anchored in place.

B. Cover-Crop Seeding

A cover crop shall be sown in all areas excavated or disturbed during construction that were not paved, landscaped and/or seeded prior to construction. Areas landscaped and/or seeded prior to construction shall be restored to their original or superior condition.

Cover-crop seeding shall follow backfilling operations.

The Developer and/or Contractor shall be responsible for protecting all areas from erosion until the cover crop affords such protection. The cover crop shall be re-seeded if required and additional measures taken to provide protection from erosion until the cover crop is capable of providing protection.
During winter months, the Contractor may postpone seeding, if conditions are such that the seed will not germinate and grow. The Developer and/or Contractor will not, however, be relieved of the responsibility of protecting all areas until the cover crop has been sown and affords protection from erosion.

The cover crop shall be sown at a rate of 10 to 15 pounds of seed per acre using a hand or power operated mechanical seeder capable of providing a uniform distribution of seed.

### 6.04 Adjustment of New and Existing Utility Structures to Grade

See Chapter 5.11 for requirements regarding utility grade adjustments.

This work consists of constructing and/or adjusting all new and existing utility structures encountered on the project to finished grade.

#### A. Asphalt Concrete Paving Projects

On asphalt concrete paving projects, the manholes shall not be adjusted until the pavement is completed, at which time the center of each manhole lid shall be relocated from references previously established by the Developer and/or Contractor. The pavement shall be cut as further described and base material removed to permit removal of the cover. The manhole shall then be brought to proper grade.

As soon as the street is paved past each manhole, the asphalt concrete mat shall be scored around the location of the manhole, catch basin, meter boxes or valve box. After rolling has been completed and the mat has cooled, it shall be cut along the scored lines. The manholes, catch basins, meter boxes and valve boxes shall then be raised to finished pavement grade and the annular spaces filled with cement concrete to within 1 1/2 inches of the finished grade. The remaining 1 1/2 inches shall be filled with asphalt concrete Class B to give a smooth finished appearance.

After pavement is in place, all joints shall be sealed with hot asphalt cement (AR 4000W). A sand blanket shall be applied to the surface of the AR 4000W hot asphalt cement binder to help alleviate “tracking”.

Asphalt concrete patching shall not be carried out during wet ground conditions or when the ambient air temperature is below 50°F. Asphalt concrete mix shall be at required temperature when placed. Before making the asphalt concrete repair, the edges of the existing asphalt concrete pavement and the outer edge of the casting shall be tack coated with hot asphalt cement. The remaining 2” shall then be filled with Class B asphalt concrete and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density and uniformity of grade. The joint between the patch and the existing pavement shall then be carefully painted with hot asphalt cement or asphalt emulsion and shall be immediately covered with dry paving sand before asphalt cement solidifies. All debris such as asphalt pavement, cement bags, etc., shall be removed and disposed of by the Developer and/or his Contractor.
6.05 Finishing And Cleanup

See Chapter 5.12 for requirements regarding cleanup.

After all other work on this project is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections of a new roadway consistent with the original section, and as hereinafter specified.

Slopes, sidewalk areas, planting areas and roadway shall be smoothed and finished to the required cross section and grade by means of a grading machine insofar as it is possible to do so without damaging existing improvements, trees and shrubs. Machine dressing shall be supplemented by hand work to meet requirements outlined herein, to the satisfaction of the City Inspector and/or the City Engineer.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All graded areas shall be true to line and grade. Where the existing surface is below sidewalk and curb, the area shall be filled and dressed out to the walk. Wherever fill material is required in the planting area, the finished grade shall be elevated to allow for final settlement, but nevertheless, the raised surface shall present a uniform appearance.

All rocks in excess of one (1) inch diameter shall be removed from the entire construction area and shall be disposed of the same as required for other waste material. In no instance shall the rock be thrown onto private property. Overhang on slopes shall be removed and slopes dressed neatly so as to present a uniform, natural, well-sloped surface.

All excavated material at the outer lateral limits of the project shall be removed entirely. Trash of all kinds resulting from clearing and grubbing or grading operations shall be removed and not placed in areas adjacent to the project. Where machine operations have broken down brush and trees beyond the lateral limits of the project, the Developer and/or Contractor shall remove and dispose of same and restore said disturbed areas at his own expense.

Drainage facilities such as inlets, catch basins, culverts, and open ditches shall be cleaned of all debris which is the result of the Developer and/or Contractor’s operations.

All pavements and oil mat surfaces, whether new or old, shall be thoroughly cleaned. Existing improvements such as Portland cement concrete curbs, curb and gutters, walls, sidewalks, and other facilities which have been sprayed by the asphalt cement shall be cleaned to the satisfaction of the City Inspector and/or City Engineer.
SECTION 7 WATER SYSTEM STANDARDS

7.01 General

All standards regarding requirements for water systems shall be per Coal Creek Utility District (CCUD) Standards. Coal Creek Utility District can be contacted at (425) 235-9200.

7.02 Street Patching and Restoration

See Chapter 4 and Standard Details for requirements regarding street patching and trench restoration.

7.03 Erosion Control

See Chapter 5.10 for requirements regarding erosion control.

The detrimental effects of erosion and sedimentation shall be minimized by conforming with the following general principles:

- Soil shall be exposed for the shortest possible time.
- Reducing the velocity and controlling the flow of runoff.
- Detaining runoff on the site to trap sediment.
- Releasing runoff safely to downstream areas.

In applying these principles, the Developer and/or Contractor shall provide for erosion control by conducting work in workable units; minimizing the disturbance to cover crop materials; providing mulch and/or temporary cover crops, sedimentation basins, and/or diversions in critical areas during construction; controlling and conveying runoff; and establishing permanent vegetation and installing erosion control structures as soon as possible.

A. Trench Mulching

Where there is danger of backfill material being washed away due to steepness of the slope along the direction of the trench, backfill material shall be compacted and held in place by covering the disturbed area with straw and held with a covering of jute matting or wire mesh anchored in place.

B. Cover-Crop Seeding

A cover crop shall be sown in all areas excavated or disturbed during construction that were not paved, landscaped and/or seeded prior to construction. Areas landscaped and/or seeded prior to construction shall be restored to their original or superior condition.

Cover crop seeding shall follow backfilling operations.

The Developer and/or Contractor shall be responsible for protecting all areas from erosion until the cover crop affords such protection. The cover crop shall be re-seeded if required and additional measures taken to provide protection from erosion until the cover crop is capable of providing protection.
During winter months, the Contractor may postpone seeding, if conditions are such that the seed will not germinate and grow. The Developer and/or Contractor will not, however, be relieved of the responsibility of protecting all areas until the cover crop has been sown and affords protection from erosion.

The cover crop shall be sown at a rate of 10 to 15 pounds of seed per acre using a hand or power operated mechanical seeder capable of providing a uniform distribution of seed.

7.04 Adjustment of New and Existing Utility Structures to Grade

See Chapter 5.11 for requirements regarding utility grade adjustments.

This work consists of constructing and/or adjusting all new and existing utility structures encountered on the project to finished grade.

A. Asphalt Concrete Paving Projects

On asphalt concrete paving projects, the manholes shall not be adjusted until the pavement is completed, at which time the center of each manhole lid shall be relocated from references previously established by the Developer and/or Contractor. The pavement shall be cut as further described and base material removed to permit removal of the cover. The manhole shall then be brought to proper grade.

As soon as the street is paved past each manhole, the asphalt concrete mat shall be scored around the location of the manhole, catch basin, meter boxes or valve box. After rolling has been completed and the mat has cooled, it shall be cut along the scored lines. The manholes, catch basins, meter boxes and valve boxes shall then be raised to finished pavement grade and the annular spaces filled with cement concrete to within 1-1/2 inches of the finished grade. The remaining 1-1/2 inches shall be filled with asphalt concrete Class B to give a smooth finished appearance.

After pavement is in place, all joints shall be sealed with hot asphalt cement (AR 4000W). A sand blanket shall be applied to the surface of the AR 4000W hot asphalt cement binder to help alleviate “tracking”.

Asphalt concrete patching shall not be carried out during wet ground conditions or when the ambient air temperature is below 50°F. Asphalt concrete mix shall be at required temperature when placed. Before making the asphalt concrete repair, the edges of the existing asphalt concrete pavement and the outer edge of the casting shall be tack coated with hot asphalt cement. The remaining 2” shall then be filled with Class B asphalt concrete and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density and uniformity of grade. The joint between the patch and the existing pavement shall then be carefully painted with hot asphalt cement or asphalt emulsion and shall be immediately covered with dry paving sand before asphalt cement solidifies. All debris such as asphalt pavement, cement bags, etc., shall be removed and disposed of by the Developer and/or his Contractor.
7.05 Finishing and Cleanup

See Chapter 5.12 for requirements regarding cleanup.

After all other work on this project is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections of a new roadway consistent with the original section, and as hereinafter specified.

On water system construction where all or portions of the construction is in undeveloped areas, the entire area which has been disturbed by the construction shall be shaped so that upon completion the area will present a uniform appearance, blending into the contour of the adjacent properties. All other requirements outlined previously shall be met.

Slopes, sidewalk areas, planting areas and roadway shall be smoothed and finished to the required cross section and grade by means of a grading machine insofar as it is possible to do so without damaging existing improvements, trees and shrubs. Machine dressing shall be supplemented by hand work to meet requirements outlined herein, to the satisfaction of the City Inspector and/or the City Engineer.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All graded areas shall be true to line and grade. Where the existing surface is below sidewalk and curb, the area shall be filled and dressed out to the walk. Wherever fill material is required in the planting area, the finished grade shall be elevated to allow for final settlement, but nevertheless, the raised surface shall present a uniform appearance.

All rocks in excess of one (1) inch diameter shall be removed from the entire construction area and shall be disposed of in the same as required for other waste material. In no instance shall the rock be thrown onto private property. Overhang on slopes shall be removed and slopes dressed neatly so as to present a uniform, natural, well-sloped surface.

All excavated material at the outer lateral limits of the project shall be removed entirely. Trash of all kinds resulting from clearing and grubbing or grading operations shall be removed and not placed in areas adjacent to the project. Where machine operations have broken down brush and trees beyond the lateral limits of the project, the Developer and/or Contractor shall remove and dispose of same and restore said disturbed areas at his own expense.

Drainage facilities such as inlets, catch basins, culverts, and open ditches shall be cleaned of all debris which is the result of the Developer and/or Contractor's operations.

All pavements and oil mat surfaces, whether new or old, shall be thoroughly cleaned. Existing improvements such as Portland cement concrete curbs, curb and gutters, walls, sidewalks, and other facilities which have been sprayed by the asphalt cement shall be cleaned to the satisfaction of the City Street Superintendent and/or City Engineer.

Castings for monuments, water valves, vaults and other similar installations which have been covered with the asphalt material shall be cleaned to the satisfaction of the City and/or the Engineer.
SECTION 8  MISCELLANEOUS UTILITY SERVICES AND ADDITIONAL DEVELOPMENT REQUIREMENTS

8.01 General

The standards established by this chapter are intended to represent the minimum standards for the design and construction of additional facilities. Greater or lesser requirements may be mandated by the City due to localized conditions. The following design and construction considerations shall apply.

8.02 Traffic Control

The developer/contractor shall be responsible for interim traffic control during construction on or along traveled city roads. Traffic control shall follow the guidelines of Section 1-07.23 of the WSDOT/APWA Standard Specifications. All barricades, signs and flagging shall conform to the requirements of the MUTCD Manual. Signs must be legible and visible and should be removed at the end of each work day if not applicable after construction hours.

Haul Routes. If the construction of a proposed development is determined by the Director to require special routing of large trucks or heavy construction equipment to prevent impacts to surrounding roads, residences or businesses, the developer/contractor shall be required to develop and use an approved haul route. When required, the haul route plan must be prepared and submitted to the Director and approved prior to beginning or continuing construction. The haul route plan shall address routing, hours of operation, signage and flagging, and daily maintenance. If the developer/contractor’s traffic fails to use the designated haul route, the Director may prohibit or limit further work on the development until such time as the requirements of the haul route are complied.

Haul Road Agreement. When identified as a need by the SEPA review process or by the city engineer, a haul road agreement shall be obtained by the franchised utility, developer or property owner establishing restoration procedures to be performed upon completion of the haul operation.

8.03 Utility Services

All utility lines, including electric, telephone, fiber optic, fire alarm and television cables shall be placed underground prior to paving. Easement for maintenance of all utilities, both on and off-site, shall be provided as applicable to the satisfaction of the city engineer.

Utilities to be located within existing and proposed city road right-of-way shall be constructed in accordance with current franchise and/or permit procedure and in compliance with these standards. In their use of the right-of-way, utilities will be given consideration in concert with the traffic carrying requirements of the road which are, namely, to provide safe, efficient and convenient passage for motor vehicles, pedestrians, and other transportation uses. Aesthetics shall be a consideration. Undergrounding of electric utilities shall be required in all types of development. Also, utilities are subject to city policies relating to drainage, erosion/sedimentation control and sensitive areas as set forth in Chapter 13.10 NMC, Surface Water Management, and NMC Title 18, Zoning.

Notwithstanding other provisions, underground systems shall be located at least five feet away from road centerline and where they will not otherwise disturb existing survey.
monumentation.
### STANDARD DRAWINGS

#### SECTION 9  STANDARD DRAWINGS

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SECTION 10 MISCELLANEOUS CITY DOCUMENTS

- Developer Extension Agreement
- Sample Easement Document
- Sample Bill of Sale Document
- Affidavit of "No Liens" on Project
- Developer Extension Checklist
- Developer's Bond Document
- Sample Right-of-Way Construction Permit (2 pages)
- Bond Quantity Work Sheet
- Engineering Plan Review Checklist Minimum Requirements
- Pre-application Checklist
- Pre-Construction Checklist
- Standard Plan Notes
- Record Drawings Procedures
- Stormwater Facility Declaration of Covenant
Chapter 12.05
GENERAL CONSIDERATIONS*

Sections:

12.05.005 Purpose.

12.05.010 Development guidelines adopted.

12.05.020 Applicability.

12.05.030 Responsibility to provide roadway improvements.

12.05.040 General references.

12.05.070 Road plans.

12.05.080 Variances.

12.05.090 Financial guarantees.

12.05.100 Indemnification/liability insurance.

*Prior legislation: Ords. 19, 50 and 98-176.

12.05.005 Purpose.

The city has adopted the road design standards in this chapter primarily for a two-fold purpose:

A. To set forth specific, consistent road design elements for developers and other private parties constructing or modifying road or right-of-way facilities which require city licenses or permits; and

B. To establish uniform criteria to guide the city’s construction of new city roads or reconstruction of existing roads.

In addition, the road standards are intended to support the city’s goals of achieving affordable housing, providing adequate facilities for development in an efficient manner, and complying with stormwater management and sensitive critical area policies, and to balance these goals with the general safety and mobility needs of the traveling public.

In adopting the road standards, the city has sought to encourage standardization of road design elements where necessary for consistency and to assure so far as practical that motoring, bicycling, equestrian, and pedestrian public safety needs are met. Considerations include safety, convenience, pleasant appearance, proper drainage, and economical maintenance. The standards
also provide requirements for the location and installation of utilities within the right-of-way or

easements. The city’s permitting and licensing activities require the adoption of specific,

identifiable standards to guide private individuals and entities in the administrative process of

procuring the necessary city approval. Yet, the city must have needed flexibility to carry out its
general duty to provide streets, roads, and highways for the diverse and changing needs of the
traveling public. Accordingly, these standards are not intended to represent the legal standard by
which the city’s duty to the traveling public is to be measured.

These standards cannot provide for all situations. They are intended to assist but not to substitute
for competent work by design professionals. It is expected that land surveyors, engineers, and
architects will bring to each project the best of skills from their respective disciplines. These
standards are also not intended to limit unreasonably any innovative or creative effort which
could result in better quality, better cost savings, or both. Any proposed departure from the
standards will be judged, however, on the likelihood that such variance will produce a
compensating or comparable result, in every way adequate for the road user and city resident.
(Ord. 2000-211 Exh. A).

12.05.010 Development guidelines adopted.

A. The city adopts the city of Newcastle public works standards (August 2000) as

the road standards for the city.

B. The city’s public works standards may be referred to in this chapter as the “standards.”

“Standard drawings” shall refer to the drawings contained in the city’s public works standards as
adopted in this chapter.

C. The director of public works is authorized to adopt administratively minor changes to the
standard drawings to better implement the standards or allow for changes in road design and
construction technology and methods occurring after the effective date of the ordinance codified
in this section. (Ord. 2009-411 § 1; Ord. 2000-223 § 1; Ord. 2000-211 Exh. A).

12.05.020 Applicability.

A. These standards shall apply prospectively to all newly constructed road and right-of-way
facilities, both public and private, within the city. In the event of conflict with NMC Title 17,
Subdivisions, these standards shall control.

B. The standards apply to modifications of roadway features of existing facilities which are
within the scope of reconstructions, required off-site road improvements for land developments,
or capital improvement projects when so required by the city or to the extent they are expressly
referred to in project plans and specifications. These standards are not intended to apply to
“resurfacing, restoration, and rehabilitation” projects as those terms are defined in the Local
Agency Guidelines, WSDOT, as amended; however, the engineer may at his discretion consider
the standards as optional goals.
C. The standards shall apply to every new placement and every planned, nonemergency replacement of existing utility poles and other utility structures within the city right-of-way. (Ord. 2000-211 Exh. A).

12.05.030 Responsibility to provide roadway improvements.

A. Any land development which will impact the service level, safety, or operational efficiency of serving roads or is required by other city code or ordinance to improve such roads shall improve those roads in accordance with these standards. The extent of off-site improvements to serving roads shall be based on an assessment of the impacts of the proposed land development by the city.

B. Any land development abutting and impacting existing roads shall improve the frontage of those roads in accordance with these standards. Urban residential short plats creating only one additional lot to a tax lot with an existing dwelling unit are exempt from providing urban type street improvements but are subject to shoulder improvements provided these improvements are consistent with the surrounding roads.

C. Any land development that contains internal roads shall construct or improve those roadways to these standards.

D. A subdivision shall not be recorded unless there exists a recorded continuous public access to the subdivision. The city shall not accept a road for maintenance until the road is directly connected to a city or other publicly maintained road.

E. All road improvement and development projects shall include pedestrian access as a part of the design. Where existing roadways are to be modified, pedestrian facilities shall be as described in these standards. (Ord. 2000-211 Exh. A).

12.05.040 General references.

The standards implement and are intended to be consistent with:

A. Newcastle codes and ordinances, as amended, including, but not limited to:

1. The surface water management policies and programs;

2. The building and construction standards;

3. The fire code;

4. The subdivision regulations;

5. The comprehensive plan;

6. The zoning code;
7. The traffic code.

B. Implementing guidelines on drainage hereafter are referred to as the “surface water design manual.” (Ord. 2000-211 Exh. A).

### 12.05.050 Permit Required.

Prior to undertaking any construction activity in the public right-of-way or easements, the owner or contractor shall first obtain issuance of a right-of-way use permit. The owner or contractor must file an application on a form available from the city clerk together with the payment of a fee adopted by resolution. As soon as the permit is approved and issued by the city the applicant may undertake the approved construction activity in the public right-of-way or easement subject to any conditions imposed by the city as part of the permit.

**Permit Issuance.** The city shall review all applications for right-of-way use permits. The engineer shall approve such applications when all information required therein is fully completed to the satisfaction of the city and when the other requirements of this section are met. The city shall not issue right-of-way use permits for utility installation for hard-surface (pavement) cuts (except in emergency situations) for a period of five years from the initial surfacing or general resurfacing of the pavement to be cut. In addition to the cost of the normal right-of-way use permit fee, any right-of-way use permit issued for utility installation for hard-surface (pavement) cuts shall require an additional fee of two hundred fifty dollars ($250.00); provided, however, that in the case of emergency permits issued within five years of the initial surfacing or resurfacing of the pavement to be cut, the additional fee shall be one thousand five hundred dollars ($1,500.00) if the cut is made within one year after the street has been overlaid; one thousand two hundred fifty dollars ($1,250.00) if the cut is made within two years after the street has been overlaid; one thousand dollars ($1,000.00) if the cut is made within three years after the street has been overlaid; seven hundred fifty dollars ($750.00) if the cut is made within four years after the street has been overlaid; and five hundred dollars ($500.00) if the cut is made within five years after the street has been overlaid.

### 12.05.070 Road plans.

Plans for roads and road drainage shall be prepared and submitted consistent with these standards and in accordance with the standards identified in the standard drawings. These requirements shall apply to public or private roads whether constructed by private party or public agency. (Ord. 2000-211 Exh. A).

### 12.05.080 Variances.

A. Variances from these standards may be granted by the engineer-Director upon evidence that such variances are in the public interest and that requirements for safety, function, fire protection, appearance and maintainability based upon sound engineering judgement are fully met. Variance requests for subdivisions should be proposed at preliminary plat stage and prior to any public hearing or land use decision. Variances must be approved prior to approval of the
engineering plans for construction. Any anticipated variances from these standards which do not meet the Uniform Fire Code shall also require concurrence by the fire marshal.

B. Application for Variance. Application for a variance shall be filed with the city engineer in writing and shall be accompanied by an appropriate fee as established by resolution, to pay for the cost of processing the application, and the costs of publishing and posting the required public notices. All applications shall be accompanied by a current copy of the King County assessor’s record showing the legal owners of all property within 300 feet of the requested variance area. All applications shall describe the variance, with specific references to the sections being requested for variance, contain a statement as to why the variance is necessary, and why it would meet the criteria of this chapter. The application shall also contain scaled drawings of the variance area, abutting roads, and all property within 300 feet thereof. (Ord. 2000-211 Exh. A).

C. Appeal. Decisions of the Director may be appealed through a closed-record hearing before the Hearing Examiner per NMC 19.15.020. Proposed projects will not be allowed to proceed to land use approval until all known variances have been approved.

12.05.090 Financial guarantees.

Developers and contractors performing work within the public right-of-way or publicly owned easement(s) shall satisfy the following two financial requirements:

A. The developer or contractor shall furnish a performance surety, approved as to surety by the director and as to form by the city attorney, which shall be conditioned upon faithful completion of that portion of the work performed pursuant to the permit, and which shall require completion by the city should the developer or the contractor default. The amount of the surety shall be in accordance with the bonding schedule contained in the standards as approved by the city engineer. The city engineer shall review and provide approval, as may be applicable, of the submitted amount.

All work on private road and storm drainage facilities required as a condition of a city approval shall be guaranteed by a performance surety at the time of plat recording.

B. The developer or the contractor shall furnish a maintenance surety, approved as to surety by the director and as to form by the city attorney, which shall be conditioned upon faithful maintenance of all work for a two-year prior-period from the time of inspection and final acceptance of the work by the city. (Ord. 2000-211 Exh. A).

12.05.100 Indemnification/liability insurance.

A. Hold Harmless Clause. The developer shall indemnify and hold harmless the city and the city engineer, and their agents and employees, from and against all claims, damages, losses, and expenses for bodily injury, sickness, disease, or death, or for injury or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom, and including attorney’s fees, arising out of or resulting from the performance of the work and shall, after
reasonable notice, defend and pay the expense of defending any suit and pay any judgment resulting from any such suit; provided, that any such claim, damage, loss, or expense is caused in whole or in part by any negligent act or omission or by any other action giving rise to strict liability of the developer, any subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

In any and all claims against the city or city engineer, or any of their agents or employees, by any employee of the developer, any subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under this section shall not be limited in any way by any limitation on the amount or type of damages or compensation under workman’s compensation acts, disability benefit acts, or other employee’s benefit acts.

The obligations of the developer under this article shall not include the sole negligence of the city or city engineer.

B. Developer’s Public Liability and Property Damage Insurance. The developer shall not commence work until he has furnished evidence (in duplicate copy) of insurance required hereunder, and such insurance has been approved by the city; nor shall the developer allow any contractor or subcontractor to commence work on his contract or subcontract until the same insurance requirements have been complied with by such contractor or subcontractor. Approval of the insurance by the city shall not relieve or decrease the liability of the developer thereby.

Companies writing the insurance under this section shall be authorized to do business in the state of Washington.

The developer shall maintain, during the life of the permit or approval, comprehensive general and automobile liability insurance, as detailed herein. The insurance shall include the city as an additional named insured. All insurance policies shall be endorsed to provide that the policy shall not be canceled or reduced in coverage until after 10 days’ prior written notice, as evidenced by return receipt or registered letter has been given to the city.

Comprehensive general property damage liability insurance shall include:

1. Premises and operations;

2. Developer’s protective liability;

3. Products liability, including completed operations coverage;

4. Contractual liability;

5. Broad form property damage.

Comprehensive automobile bodily injury and property damage shall include:
1. All owned automobiles;

2. Non-owned automobiles;

3. Hired automobiles.

The insurance coverages listed above shall protect the developer from claims for damages for bodily injury, including death resulting therefrom, as well as claims for property damage, which may arise from operations under this contract, whether such operations be by himself or by any subcontractor or by anyone directly employed by either of them, it being understood that it is the developer’s obligation to enforce the requirements of this section as respects any contractor or subcontractor.

Comprehensive general automobile liability insurance shall provide coverage for both bodily injury and property damage, as follows:

1. Comprehensive general and automobile bodily injury liability insurance on an occurrence basis of not less than $1,000,000 for bodily injury, sickness or disease, including death resulting therefrom, sustained by each person; and for limits of not less than $1,000,000 for each occurrence.

2. Comprehensive general property damage liability insurance on an occurrence as is for limits of not less than $1,000,000 for damage to or destruction of property, including loss of use thereof, arising from each occurrence, and in an amount of not less than $1,000,000 in aggregate.

3. Comprehensive automobile property damage liability insurance on an occurrence basis for limits of not less than $1,000,000 for damage to or destruction of property, including loss of use thereof, arising from each occurrence.

Comprehensive liability insurance shall include the city and city engineer as an additional named insured.

Comprehensive general property damage liability insurance shall include liability coverage for damage to or destruction of property of other, including loss of use of property damaged or destroyed, and all other indirect and consequential damage for which liability exists in connection with such damage to or destruction of property of others, and shall include coverage for:

(“X”) Injury to or destruction of any property arising out of blasting or explosion;

(“C”) Injury to or destruction of any property arising out of the collapse of/or structural injury to any building or structure due:

1. To excavation, including borrowing, filling or backfilling in connection therewith; or tunneling, pile driving, coffer-dam work or caisson work; or
2. To moving, shoring, underpinning, raising or demolition of any building or structure or
removal or rebuilding of any structural support thereof.

(“U”) 1. Injury to or destruction of wires, conduits, pipes, mains, sewers or other similar property
or any apparatus in connection therewith, below the surface of the ground, if such injury or
destruction is caused by and occurs during the use of mechanical equipment for the purpose of
excavating or drilling; or

2. Injury to or destruction of property at any time resulting therefrom.

There shall be included in the liability insurance, contractual coverage sufficiently broad to
insure the provisions of “hold harmless clause.”

Nothing contained in these insurance requirements is to be construed as limiting the extent of the
developer’s responsibility for payment of damages resulting from his operations under this
contract.

In the event the developer is required to make corrections on the premises after the work has
been inspected and accepted, he shall obtain, at his own expense, and prior to commencement of
any corrective work, full insurance coverage, as specified herein.

The developer shall furnish, upon request by the city, certified copies of the insurance policy or
policies within two weeks of the city’s request.

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

In the event any class of employees engaged in work at the site of the work is not covered under
the workmen’s compensation insurance or maritime workmen’s insurance, as required by state
and federal statute, the developer shall maintain and shall cause each contractor or subcontractor
to maintain employer’s liability insurance with a private insurance company for limits of at least
$100,000, each person, and $300,000, each accident, and furnish satisfactory evidence of same.
(Ord. 2000-211 Exh. A).

**12.05.110 Violation and penalty.**

Violation. It shall be a crime to undertake construction activity in the public right-of-way or
easements without a right-of-way use permit as required in this chapter. It shall also be a crime to
fail to post a bond or alternative security as required in NMC Chapter 12.05.090. Violators shall
be subject to a maximum fine of one thousand dollars ($1,000.00) with each day of illegal
activity and/or each day the bond or security remains unposted constituting a separate offense.
Civil Infraction. It shall also be a civil infraction to undertake construction activity in the public right-of-way or easement without a right-of-way use permit as required in this chapter. It shall also be a civil infraction to fail to post a bond or alternative security as required in NMC Chapter 12.05.090. Civil infractions under this section shall be processed as set forth in NMC Chapter 1.10.
NOTES:

1. TIMBER SHALL BE DOUGLAS FIR, DENSE CONSTRUCTION GRADE, AND SHALL BE TREATED PER WSDOT 9-09.3.

2. STEEL TUBE SHALL CONFORM TO ASTM 453 OR ASTM A53 GRADE A.

3. NUTS, BOLTS & WASHERS SHALL CONFORM TO WSDOT STANDARD.

4. ALL STEEL PARTS SHALL BE GALVANIZED.
NOTES:

1. TIMBER SHALL BE DOUGLAS FIR, DENSE CONSTRUCTION GRADE, AND SHALL BE TREATED PER WSDOT 9-09.3.
OFFSET HAMMERHEAD

NOTES:

1. THIS ACCESS TURNAROUND SHALL ONLY BE UTILIZED IF SPECIFICALLY APPROVED IN WRITING BY THE CITY.

2. ALL DIMENSIONS ARE MINIMUM REQUIREMENTS.

3. OTHER SHAPED ACCESS TURNAROUNDS ARE AN ACCEPTABLE ALTERNATIVE TO THOSE SHOWN, PROVIDED THE DESIGN MEETS THE MINIMUM DIMENSION REQUIREMENTS SHOWN ABOVE.


5. MINIMUM ROAD WIDTH SHOWN DOES NOT INCLUDE ANY SHOULDER DIMENSIONS OR CURB DIMENSIONS IF REQUIRED.

NEWCASTLE FIRE ACCESS CRITERIA:

A. ALL LEGS OF THE TURNAROUND SHALL BE A MINIMUM OF 20 FEET OF UNOBSRTUCTED WIDTH.

B. THE ALTERNATIVE FIRE APPARATUS ACCESS TURNAROUND SHALL BE MARKED AS A FIRE LANE.

C. THE ALTERNATIVE FIRE APPARATUS ACCESS TURNAROUND SHALL MEET THE SAME GRADE AND SURFACING STANDARDS APPLIED TO FIRE ACCESS ROADS.

D. THE MAXIMUM CROSS SLOPE ON AN ALTERNATIVE FIRE APPARATUS ACCESS TURNAROUND SHALL NOT EXCEED SIX PERCENT.

E. ALTERNATIVE DESIGNS THAT DO NOT MEET THE CRITERIA ESTABLISHED IN THIS SECTION MAY BE APPROVED BY THE CITY.

CITY OF NEWCASTLE

ALTERNATIVE FIRE ACCESS
TURNAROUND

APPROVED:
ROGER KUYKENDALL, P.E.  7/10/2014
BY CITY
DATE

DWG. NO. MD-3

DATE: DRWN: CHKD: SCALE:
P.M. R.K. NONE
NOTES:

1. PLANT TREES 1 IN. HIGHER THAN DEPTH GROWN IN NURSERY. TREE PIT SHALL NOT BE LESS THAN (2) TIMES DIAMETER OF ROOTBALL.

2. THERE SHALL BE A MINIMUM ROOTBALL DIAMETER OF 10 IN. PER TRUNK CALIPER INCH AS MEASURED 6 IN. ABOVE ROOTBALL.

3. TREE SHALL BE AS APPROVED BY THE CITY.
NOTES:
1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR STORM WATER STRUCTURE IT WILL SERVICE.

2. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS)

3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL

4. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).
NOTES:

1. ALL STEEL PARTS MUST BE GALVANIZED & ASPHALT COATED (TREATMENT 1 OR BETTER).

2. CONTRACTOR TO VERIFY DIMENSIONS.
FINISHED GRADE OR SUBGRADE

BACKFILL MATERIAL CONSISTING OF CRUSHED ROCK, SUITABLE EXCAVATED MATERIAL OR GRAVEL BORROW AS REQUIRED, AND DIRECTED BY CITY

SPECIAL PRECAUTIONS TO PROTECT PIPE TO THIS LEVEL

HAND-PLACED, COMPACTED SELECT MATERIAL AS REQUIRED

RIGID STORM DRAIN PIPE AS SPECIFIED PER CITY STANDARDS

GRAVEL BACKFILL FOR PIPE BEDDING

FOUNDATION GRAVEL AS REQUIRED

UNDISTURBED EARTH

---

* 4-INCHES FOR PIPE 18-INCH DIA. AND LESS 6-INCHES FOR PIPE GREATER THAN 18-INCH DIA.
FINISHED GRADE OR SUB-GRADE

BACKFILL MATERIAL CONSISTING OF CRUSHED ROCK, SUITABLE EXCAVATED MATERIAL OR GRAVEL BORROW AS REQUIRED, AND DIRECTED BY CITY

SPECIAL PRECAUTIONS TO PROTECT PIPE TO THIS LEVEL

TOP OF PIPE BEDDING

FLEXIBLE STORM DRAIN PIPE AS SPECIFIED PER CITY STANDARDS

GRAVEL BACKFILL FOR PIPE BEDDING

FOUNDATION GRAVEL AS REQUIRED

UNDISTURBED EARTH

* 4-INCHES FOR PIPE 18-INCH DIA. AND LESS 6-INCHES FOR PIPE GREATER THAN 18-INCH DIA.
INTERSECTION DIAGRAM

DIMENSIONS:

A - VARIES 22' - 36'
B - 25' MIN.
C - 1'-0" - 5'-0"
D - VARIES
E - 20' MIN.
TYPICAL TRAFFIC CIRCLE

PLANT MATERIAL PER CITY-APPROVED LANDSCAPING PLAN

Curb, cement concrete mountable

Through joints: Use 4 for < 20' diameter. Use 8 for ≥ 20' diameter.

2 - No. 3 bars (typ. between joints)

3 - No. 3 curb dowels (typ. between joints)

TYPICAL SECTION A

Plant material per city-approved landscaping plan

Planting mulch (2"

Top soil (3"

Ex. conc. or HMA

No. 3 bars typ.

No. 3 curb dowel

LINE DRILL REMOVE PAVEMENT

CURB, CEMENT CONCRETE MOUNTABLE (DOWELED)

30" x 30" black on yellow placed 75' to 100' back from traffic circle on each approach.

NOTE: LANDSCAPED AREAS MUST BE PROVIDED WITH SEPARATE WATER METER. ALL IRRIGATION PLANS MUST BE APPROVED BY THE CITY.

CITY OF NEWCASTLE

TRAFFIC CIRCLE

APPROVED: ROGER KUYKENDALL, P.E. 7/10/2014
BY CITY

DATE: DRWN: CHKD: SCALE:

P.M. R.K. NONE
NOTES:

1. SIGN AND LEGEND LOCATION SHALL BE VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
2. LEGEND AND V MARKINGS TO BE THERMOPLASTIC.
3. SPEED HUMP TO BE CONSTRUCTED OF CLASS "G" ASPHALT CONCRETE.
4. WARNING SIGN IS ONLY USED AS ALTERNATE TO PAVEMENT MARKINGS.
MARKING DETAIL

SECTION A-A

RAISED CROSSWALK/ASPHALT WIDENING SECTION

NOTES:

1. RAISED CROSSWALK CHEVRON MARKING SHALL BE THERMOPLASTIC, HEAT FUSED PREFORMED, 90 MIL., OR EQUAL APPROVED BY THE ENGINEER.

2. CHEVRON TO BE CENTERED IN THE DRIVING LANE. LOCATION SHALL BE VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
RIGHT-OF-WAY 50'

R-O-W LINE

SIDEWALK

PLANTER STRIP

DRIVING LANE

DRIVING LANE

PLANTER STRIP

SIDEWALK

2% MAX

2' CEMENT CONCRETE CURB

3" HMA

4" CRUSHED ROCK

COMPOSTED TOPSOIL,
12" MIN.

UNDERDRAIN
(IF REQUIRED)

4" CRUSHED ROCK

CITY OF NEWCASTLE

SUGGESTED LID STREET
CROSS-SECTION

NOTES:

1. DRIVEWAY ENTRANCES SHALL SLOPE AWAY FROM STREET TO DRIVEWAY TRENCH DRAIN. SIDEWALK SHALL SLOPE TO TRENCH DRAIN.

CITY OF NEWCASTLE

SUGGESTED LID STREET
CROSS-SECTION

APPROVED:

ROGER KUYKENDALL, P.E. 7/10/2014
BY CITY

DATE:

DRWN: P.M.  
CHKD: R.K.  
SCALE: NONE

DWG. NO. T-16
NOTES:

1. SEE SECTION 4.23.

2. COMMERCIAL/INDUSTRIAL DRIVEWAYS MUST BE APPROVED BY THE ENGINEER, CONSIDERING BOTH TRAFFIC SAFETY AND THE ACTIVITY BEING SERVED. ALL COMMERCIAL/INDUSTRIAL DRIVEWAYS SHALL HAVE AN EXPANSION JOINT LOCATED MID-WIDTH.

3. DRIVEWAYS SHALL BE LOCATED AS FAR FROM THE INTERSECTION AS POSSIBLE.

4. NO PORTION OF ANY DRIVEWAY SHALL ENCROACH IN CURB RETURN.

5. DRIVEWAYS SHALL BE SETBACK A MINIMUM OF 5' FROM OBJECTS.

6. MAXIMUM DRIVEWAY SLOPE IS 12% (PERCENT).

7. MAXIMUM DRIVEWAY WIDTH IS 20 FEET FOR RESIDENTIAL; 35 FEET FOR COMMERCIAL.

8. DRIVEWAYS SHALL BE SETBACK A MINIMUM OF 20 FEET FROM CROSSWALKS AND TRAFFIC CALMING DEVICES.

9. ALL DRIVEWAYS SHALL BE PAVED.
CURB AND GUTTER

RIGHT-OF-WAY LINE

PROPERTY LINE

MAX PAVED WIDTH 18'
MIN TRACT WIDTH 20'
JOINT USE DRIVEWAY TRACT
PAVED AREA
SIDEWALK
PLANTER STRIP

ROADWAY

SHOULDER/DITCH

RIGHT-OF-WAY LINE

PROPERTY LINE

MAX GRAVEL WIDTH 18'
MIN TRACT WIDTH 20'
JOINT USE DRIVEWAY TRACT
PAVED AREA TO RIGHT-OF-WAY

EDGE OF PAVEMENT

ROADWAY

NOTES:

1. SEE SEC 4.23 FOR TRACT WIDTH AND PAVING REQUIREMENTS

CITY OF NEWCASTLE
JOINT USE DRIVEWAYS

APPROVED:
ROGER KUYKENDALL, P.E.
BY CITY
7/10/2014
DATE

DRWN: P.M.
CHKD: R.K.
SCALE: NONE

DWG. NO. T-18
CITY OF NEWCASTLE

CEMENT CONCRETE DRIVeway
TYPE 3

NOTES:

1. WHEN THE DRIVEWAY WIDTH EXCEEDS 15 FEET, CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15 FEET MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30 FEET.

2. AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF DRIVEWAY ENTRANCES.

3. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE LINE BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.

4. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX. LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.

5. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS SHALL BE 2 FEET.

LEGEND

SLOPE IN EITHER DIRECTION

CITY OF NEWCASTLE
CEMENT CONCRETE DRIVeway
TYPE 3

APPROVED:
ROGER KUYKENDALL, P.E. 7/10/2014
BY CITY DATE

DWG. NO.
T-19a

DATE: DRWN: CHKED: SCALE:
P.M. R.K. NONE
NOTES:

1. WHEN THE DRIVEWAY WIDTH EXCEEDS 15 FEET, CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15 FEET MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30 FEET.

2. AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF DRIVEWAY ENTRANCES.

3. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE LINE BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.

4. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX. LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.

5. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS SHALL BE 2 FEET.

LEGEND

--- SLOPE IN EITHER DIRECTION
NOTES:

1. WHEN THE DRIVEWAY WIDTH EXCEEDS 15 FEET, CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15 FEET MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30 FEET.

2. AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF DRIVEWAY ENTRANCES.

3. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE LINE BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.

4. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX. LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.

5. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS SHALL BE 2 FEET.

LEGEND

--- SLOPE IN EITHER DIRECTION
NOTES:

1. WHEN THE DRIVEWAY WIDTH EXCEEDS 15 FEET, CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15 FEET MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30 FEET.

2. AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF DRIVEWAY ENTRANCES.

3. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE LINE BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.

4. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX. LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.

5. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS SHALL BE 2 FEET.
NOTES
1. CURB RAMP LOCATION SHALL BE PLACED WITHIN THE WIDTH OF THE ASSOCIATED CROSSWALK.
2. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE GRADE BREAK BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.
3. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURTEANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.
4. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHANGING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15-FOOT MAX. LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.
5. CURB RAMP, LANDING, AND FLARES SHALL RECEIVE BROOM FINISH.
6. PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE CURB RAMP AND/OR LANDING WILL BE AT THE SAME ELEVATION AS THE CURB RAMP OR LANDING AND THERE WILL BE NO MATERIAL TO RETAIN.
7. SUBGRADE AND FORM INSPECTION BY THE CITY SHALL BE REQUIRED PRIOR TO POURING CONCRETE.

LEGEND
Slope in Either Direction

CITY OF NEWCASTLE
PARALLEL CURB RAMP

APPROVED:
ROGER KUYKENDALL, P.E. 7/10/2014
BY CITY
DATE

擅 OB RN: P.M. CHK D: R.K. SCALE: NONE

CITY OF NEWCASTLE
PARALLEL CURB RAMP

APPROVED:
ROGER KUYKENDALL, P.E. 7/10/2014
BY CITY
DATE

DATE: DRWN: CHK D: SCALE: NONE
NOTES

1. PROVIDE A SEPARATE CURB RAMP FOR EACH MARKED OR UNMARKED CROSSWALK. CURB RAMP LOCATION SHALL BE PLACED WITHIN THE WIDTH OF THE ASSOCIATED CROSSWALK.

2. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE GRADE BREAK BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.

3. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURtenances IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.


5. CURB RAMP, LANDING, AND FLARES SHALL RECEIVE BROOM FINISH.

6. SUBGRADE AND FORM INSPECTION BY THE CITY SHALL BE REQUIRED PRIOR TO POURING CONCRETE.
NOTES

1. THIS PLAN IS TO BE USED WHERE PEDESTRIAN CROSSING IN ONE DIRECTION IS NOT PERMITTED.

2. CURB RAMP LOCATION SHALL BE PLACED WITHIN THE WIDTH OF THE ASSOCIATED CROSSWALK, OR AS SHOWN IN THE CONTRACT PLANS.

3. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE GRADE BREAK BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.

4. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS OR OTHER APPURTENANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.

5. CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INFINITELY WHEN CONNECTING TO SLOPE GRADINES. WHEN APPLYING THE 15 FOOT MAXIMUM LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.

6. CURB RAMPS AND LANDINGS SHALL RECEIVE BROOM FINISH.

7. PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE CURB RAMP AND/OR LANDING WILL BE AT THE SAME ELEVATION AS THE CURB RAMP OR LANDING AND THERE WILL BE NO MATERIAL TO RETAIN.

8. SUBGRADE AND FORM INSPECTION BY THE CITY SHALL BE REQUIRED PRIOR TO POURING CONCRETE.

LEGEND

SLOPE IN EITHER DIRECTION
NOTES

1. THE DETECTABLE WARNING SURFACE (DWS) SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP (EXCLUSIVE OF FLARES) OR THE LANDING.

2. THE DETECTABLE WARNING SURFACE SHALL BE PLACED AT THE BACK OF CURB, AND NEED NOT FOLLOW THE RADIUS.

3. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PERPENDICULAR TO THE GRADE BREAK AT THE BACK OF CURB.

4. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PARALLEL TO THE DIRECTION OF TRAVEL.

5. IF CURB AND GUTTER ARE NOT PRESENT, SUCH AS A SHARED-USE PATH CONNECTION, THE DETECTABLE WARNING SURFACE SHALL BE PLACED AT THE PAVEMENT EDGE.

6. WHEN THE GRADE BREAK BETWEEN THE CURB RAMP AND THE LANDING IS LESS THAN OR EQUAL TO 5 FT. FROM THE BACK OF CURB AT ALL POINTS, PLACE THE DETECTABLE WARNING SURFACE ON THE BOTTOM OF THE CURB RAMP.
NOTES:
1. MACHINE BEARING FACES OF COVER AND CASE TO INSURE POSITIVE FIT.
2. MATERIAL SHALL CONFORM TO THE CURRENT EDITION OF "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION", PREPARED BY THE WASHINGTON STATE DEPT. OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON STATE CHAPTER.
3. SEE 4.30B FOR REQUIRED LOCATIONS.
4. MONUMENT BASE SHALL BE SQUARE—4"x4" TOP; 6"x6" BOTTOM; 24" LENGTH.

POURED-IN-PLACE MONUMENT

CITY OF NEWCASTLE

Poured-in-Place Monument

Approved: ROGER KUYKENDALL, P.E. 7/10/2014

By City

Date: P.M.

Drawn: CHKD: SCALE:

R.K. None
SAW CUT AS REQUIRED AND SEAL WHEN COMPLETED WITH AR4000W AND SAND.

REMOVE EXISTING ASPHALT AND RESTORE PER ASPHALT PAVEMENT REPAIR DETAIL

SAWCUT AS REQUIRED, CLEAN AND TACK EDGES WITH SEALER CSS–1 AND SEAL JOINTS WITH HOT ASPHALT CEMENT (AR–4000W) AND SAND.

1–1 1/2" MIN. COMPACTED THICKNESS HOT MIX ASPHALT

EXISTING PAVEMENT

FULL MORTAR CONTINUOUS JOINT

CONCRETE ADJUSTMENT RINGS

12"

CEMENT CONCRETE COLLAR (CLASS 3000 PSI) WITH WIRE MESH

NOTES:

1. HOT MIX ASPHALT SHALL BE HMA CLASS 1/2" PG 64–22.

2. ALL JOINTS SHALL BE SEALED WITH MATERIALS AND IN A MANNER TO PREVENT "TRACKING" OF SEALANT.

CITY OF NEWCASTLE
MANHOLE OR CATCH BASIN (TYPE II)
GRADE ADJUSTMENT DETAIL

APPROVED:
ROGER KUYKENDALL, P.E. 7/10/2014
BY CITY DATE

DWG. NO.
T–30

DATE: DRWN: CHKD: SCALE:
P.M. R.K. NONE
NOTES:

1. CROSSWALK STRIPING SHOWN IS EXAMPLE FOR 32-FOOT WIDE ROADWAY. DOUBLE CROSSWALK STRIPE TO BE PLACED IN CENTER OF TRAVEL LANE AND OUT OF THE WHEEPLPATH. OTHER STRIPES TO BE CENTERED ABOUT LANE LINES. INSTALL SINGLE STRIPE AT CURB/PAVEMENT EDGE.

2. ALL CROSSWALK STRIPING TO BE THERMOPLASTIC.

4. DOUBLE YELLOW STRIPING TO BE REFLECTIVE PAINT.
NOTES:
1. SEE SEC. 4.06.
2. ISLAND IS MANDATORY.
3. ISLAND AT CENTER OF BULB SHALL HAVE VERTICAL CURB.
4. ISLAND TO BE LANDSCAPED AND MAINTAINED BY ADJACENT PROPERTY OWNERS.
5. SEE SEC. 4.06 FOR CUL-DE-SAC LENGTH EXCEPTION.
6. R=48'
7. R=54' - PLANTING STRIPS ARE NOT REQUIRED ALONG BULB
NOTES:

1. SEE SECTION 4.08

2. PAVEMENT DESIGN BY WASHINGTON STATE LICENSED CIVIL ENGINEER AND AS APPROVED BY THE CITY ENGINEER.

3. 5' UTILITY EASEMENT
OFFSET HAMMERHEAD

HAMMERHEAD

NOTES:

1. THIS ACCESS TURNAROUND SHALL ONLY BE UTILIZED IF SPECIFICALLY APPROVED IN WRITING BY THE CITY.

2. ALL DIMENSIONS ARE MINIMUM REQUIREMENTS.

3. OTHER SHAPED ACCESS TURNAROUNDS ARE AN ACCEPTABLE ALTERNATIVE TO THOSE SHOWN, PROVIDED THE DESIGN MEETS THE MINIMUM DIMENSION REQUIREMENTS SHOWN ABOVE.


5. MINIMUM ROAD WIDTH SHOWN DOES NOT INCLUDE ANY SHOULDER DIMENSIONS OR CURB DIMENSIONS IF REQUIRED.

NEWCASTLE FIRE ACCESS CRITERIA:

A. ALL LEGS OF THE TURNAROUND SHALL BE A MINIMUM OF 20 FEET OF UNOBSERVED WIDTH.

B. THE ALTERNATIVE FIRE APPARATUS ACCESS TURNAROUND SHALL BE MARKED AS A FIRE LANE.

C. THE ALTERNATIVE FIRE APPARATUS ACCESS TURNAROUND SHALL MEET THE SAME GRADE AND SURFACING STANDARDS APPLIED TO FIRE ACCESS ROADS.

D. THE MAXIMUM CROSS SLOPE ON AN ALTERNATIVE FIRE APPARATUS ACCESS TURNAROUND SHALL NOT EXCEED SIX PERCENT.

E. ALTERNATIVE DESIGNS THAT DO NOT MEET THE CRITERIA ESTABLISHED IN THIS SECTION MAY BE APPROVED BY THE CITY.
NOTES:

1. TIMBER SHALL BE DOUGLAS FIR, DENSE CONSTRUCTION GRADE, AND SHALL BE TREATED PER WSDOT 9-09.3.
NOTES:

1. TIMBER SHALL BE DOUGLAS FIR, DENSE CONSTRUCTION GRADE, AND SHALL BE TREATED PER WSDOT 9-09.3.

2. STEEL TUBE SHALL CONFORM TO ASTM 453 OR ASTM A53 GRADE A.

3. NUTS, BOLTS & WASHERS SHALL CONFORM TO WSDOT STANDARD.

4. ALL STEEL PARTS SHALL BE GALVANIZED.
CITY OF NEWCASTLE

CATCH BASIN – TYPE 1

APPROVED:

ROGER KUYKENDALL, P.E.  7/10/2014
BY CITY

DWG. NO. SD-1

DATE: DRWN: CHKD: SCALE:
P.M. R.K. NONE

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.

2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.

3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.

4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2” MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.

5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.

6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20”. KNOCKOUTS MAY BE EITHER ROUND OR “D” SHAPE.

7. THE MAX. DEPTH FROM THE FINISHED GRAGE TO THE PIPE INVERT IS 5’-0”.

8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2”/FT.

9. CATCH Basin FRAME and Grate shall be in accordance with standard specifications and meet the strength requirements of federal specification RR-F-621D. Mating SURFACES shall be finished to assure non-rocking fit with any cover position.

10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

11. FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DWG. B1-b.

12. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2” FROM VERTICAL EDGE OF CATCH BASIN WALL.
NOTES:
1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR STORM WATER STRUCTURE IT WILL SERVICE.

2. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS)

3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL

4. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).

CITY OF NEWCASTLE
FILTER FABRIC CATCH BASIN
INSERT FOR SEDIMENT ONLY

APPROVED: ROGER KUYKENDALL, P.E. 7/10/2014
BY CITY

DATE: DRWN: CHKD: SCALE:
P.M. R.K. NONE
NOTES:
1. PLANT TREES 1 IN. HIGHER THAN DEPTH GROWN IN NURSERY. TREE PIT SHALL NOT BE LESS THAN (2) TIMES DIAMETER OF ROOTBALL.
2. THERE SHALL BE A MINIMUM ROOTBALL DIAMETER OF 10 IN. PER TRUNK CALIPER INCH AS MEASURED 6 IN. ABOVE ROOTBALL.
3. TREE SHALL BE AS APPROVED BY THE CITY.