SECTION 9.0500 GRADING AND DRAINAGE AND STORMWATER MANAGEMENT REQUIREMENTS

General

Design Requirements

Stormwater Management Requirements

General Requirements

9.0501 Purpose

This section of the Community Development Code specifies requirements for grading and drainage, erosion control and stormwater management.

The regulations of this section require the use of Green Development and Green Streets to manage stormwater runoff on-site from all development in the city. Green Development Practices treat and manage stormwater runoff as close as possible to its source and mimic natural processes such as retention, infiltration, and evapotranspiration to treat and reduce the overall volume of stormwater runoff that drains into water bodies. Through the use of Green Development Practices and Green Streets, local and downstream flooding impacts will be minimized, and water quality and aquatic habitat will be protected to the maximum extent practicable.

Green Development Practices are a toolbox of techniques that mimic and incorporate the predevelopment hydrology of a site into the future development through two processes. The first is to create a site design that minimizes disturbance to existing soils, tree canopy, and other sensitive natural resource features and minimizes impervious surfaces to reduce the production of surface runoff. The second is to manage runoff through techniques that use natural areas and landscaping to treat, retain, attenuate, and infiltrate stormwater on the

development site instead of using only traditional piped collection and conveyance systems and regional management facilities.

Traditional systems often fail to adequately treat and reduce the volume of stormwater runoff before it is discharged into waterbodies. Traditional systems also fail to infiltrate stormwater and recharge groundwater. This impacts nearby streams by reducing summertime flows and magnifying wintertime flows, often exacerbating flooding, eroding stream channels and aquatic habitat, and contributing to excess siltation. Additionally, untreated pollutants are washed into streams compromising water quality.

9.0502 Grading and Drainage Plans and Specifications

A. Unless otherwise specified in this document, Appendix J of the current edition of the Building Code shall apply for all grading and drainage construction on private property. A site plan showing grading, drainage, and the other information detailed in the Stormwater Management Manual shall be approved prior to start of construction, or final plat approval, for all development proposals.

B. A stormwater report is required for any proposed development that will include public improvements or that is using the Engineered Method of stormwater facility sizing described in the Stormwater Management Manual.

C. When the pre-application conference indicates the applicant's proposal involves erosion and/or runoff problems, or if the subject property has shallow groundwater, is on fill, is hilly or partially within the Hillside Physical Constraint Overlay District, the Manager may require a geotechnical report from a registered geologist.

9.0503 Stormwater Report

If a Stormwater Report is required under **Section 9.0502**, supporting data shall be submitted that meets the requirements specified in the Stormwater Management Manual. The development application, stormwater report, specifications and supporting data shall be submitted and approved prior to issuance of a development permit.

9.0504 Geotechnical Report

If a geotechnical report is required under **Section 9.0502**, supporting data shall be submitted that meets the requirements specified in the Public Works Standards.

9.0505 Guarantees for Grading and Drainage

The Manager shall require a Guarantee of Completion equal to 110% of the estimated cost of:

A. Meeting the grading and drainage requirements to ensure that the work is completed in accordance with approved plans and specifications and to correct or eliminate any hazardous conditions.

B. Meeting the erosion prevention and sediment control measures to ensure that such measures are installed and maintained, including replacement and repair as needed, as required by the EPSC Manual and to correct or eliminate any conditions created because of the erosion or sediment from the site.

C. The construction cost of stormwater facilities required by **Section 9.0520** et. seq.

D. The Manager may require a warranty guarantee in an amount deemed necessary to ensure that any failure of grading and drainage, erosion control or stormwater facilities are repaired. The warranty guarantee shall be in effect from the date of acceptance of privately financed public improvements for a period of two years.

Design Requirements

9.0510 Design Guidelines for Grading and Drainage Improvements

Plans and specifications for grading and drainage improvements will include provisions for the following improvements and/or grading operations as deemed appropriate by the Manager for the subject site.

9.0511 Cuts

Cuts shall not exceed in steepness a 2:1 (horizontal to vertical) ratio unless approved by the Manager. The Manager may approve cut slopes up to a 1-1/2:1 maximum ratio if the increase in slope will result in reducing the disturbance of the natural terrain. All cuts exceeding a 2:1 ratio shall be certified by a professional engineer to have a soil type having an appropriate nature, distribution and strength to maintain the proposed slope.

9.0512 Fills

Fills shall not exceed in steepness a 2:1 (horizontal to vertical) ratio. All fills, upon completion of the project shall be certified by a professional engineer to be adequately compacted for the intended use. If the intended use is open space, appropriate easements will be recorded with the title records of Multnomah County, with a duplicate copy being kept on file with the City of Gresham.

A. The ground surface shall be prepared to receive fill by removing vegetation, non-complying fill, top soil and other unsuitable materials; scarify to provide a bond with new fill and where slopes are steeper than 15% and the high is greater than 5 feet, by benching into a competent material as determined by the geotechnical report and approved by the Manager.

B. Structural Fill Material - Detrimental amounts of organic material shall not be permitted in structural fills. Burial of tree stumps will not be allowed on any site other than an approved solid waste disposal site. No rock or similar material greater than 12 inches in diameter shall be placed in a structural fill. The Manager may permit placement of larger rock if the geotechnical report devises a method to continuously inspect placement and certify stability of rock disposal areas having no overlapping with physical improvements and is a minimum of 5 feet below grade measured vertically.

C. Structural Fill Compaction - Structural fill will be compacted to a minimum of 90% of maximum density per ASTM D-1557 or as determined by the Building Official. The soils engineer shall certify all structural fills as meeting minimum bearing capacity for the intended use.

D. Non-Structural Fills - Stripping materials and landscape berms, will be compacted by reasonable mechanical means, if greater than 3 feet in depth.

9.0513 Required Stormwater Facilities

A. All stormwater generated by on-lot impervious surfaces, including driveways, walkways, roof and foundations drains shall be discharged to either an on-site stormwater facility, curb face outlets (if minor quantity), to a public or approved private storm drain, or to a natural acceptable drainageway if adjacent to the lot.

B. All private stormlines, roof and foundation drains shall utilize infiltration systems to the maximum extent possible.

C. Private storm drainlines will be required to convey any concentration of run-off across adjoining properties so as to reach an acceptable drainage facility. Private drainage easements shall be established on the deeds or on the recorded plat face of the parcels involved with any required private drainage easements.

D. Subsurface drainage facilities may be required in areas of fill if it is so determined by the geologist or soils engineer that there will exist a groundwater situation that could cause stabilization problems. Any subsurface natural springs shall be piped to an approved drainage facility.

E. Any development that is down grade from an undeveloped parcel of ground shall intercept and divert the storm water run-off to an approved storm drainage facility. The diversion ditch may not exceed a 5% slope, unless improved with an acceptable erosion control method as determined by the Manager. In addition to the diversion ditch an interceptor pipe may be required. If the cutoff ditch and interceptor pipe is located on public open space, an easement for maintenance purposes will be established for those properties benefited by the facility.

F. All drainage provisions shall be subject to the approval of the Manager and shall be of such design as to carry storm and surface waters to the nearest practical street, storm drain or natural water course, approved by the Manager as a safe place to deposit and receive such waters. Adequate provisions shall be made to prevent any storm or surface waters from damaging the face of an excavation, the sloping face of a fill, any natural slope, or any natural or manmade drainageway.

G. Maintenance, repair, replacement and liability from damages due to failure of private drainage systems shall be the responsibility of the customer. Maintenance responsibility shall include all elements of the system up to the point of connection with a drainage structure of the public stormwater system. Such connection shall be subject to City approval. Private stormwater facilities are subject to periodic inspection by the City to ensure proper maintenance and performance.

9.0514 Erosion Prevention and Sediment Control Measures During Construction

All development, regardless of permit status, shall keep sediment laden water and any other forms of stormwater pollution from entering the public stormwater system.

The requirements for erosion prevention and sediment control shall be implemented in accordance with the Erosion Prevention and Sediment Control (EPSC) requirements included in the City of Gresham's Stormwater Management Manual.

The applicant for a development permit shall submit an EPSC plan as part of their application specifying appropriate best management practices (BMPs). For sites larger than 1 acre, the applicant must demonstrate that they have a DEQ-approved 1200-C permit.

The applicant for a development permit is ultimately responsible for retaining all soil on the project site and must recognize the potential for changing or unexpected site and weather conditions. If at any time the DEQ or City approved EPSC plan is determined to be ineffective, the City will require additional controls to be implemented until a site is stabilized. The applicant is responsible for updating the EPSC plan and resubmitting to DEQ and the City.

9.0515 Establishing Protective Vegetative Cover Upon Completion of Final Grading

To prevent and minimize erosion, all development shall implement best management practices as required by the Erosion Prevention and Sediment Control requirements in the Stormwater Management Manual including, but not limited to, the following stages of a project:

A. Vegetation is to be established as soon as practicable after completion of grading to minimize erosion.

B. Prior to final project acceptance, the site shall be permanently stabilized with seed and mulch, or permanent landscaping.

C. In cases of a land division, temporary groundcover will be accepted on each lot where home construction will begin within 30 days of project completion.

D. To the extent practicable, all stormwater facilities and open channel conveyances shall be permanently stabilized prior to use.

E. Erosion control measures shall be continued after construction until the vegetative ground cover for the site is established and functioning such that erosion has ceased.

F. The developer will be responsible for all erosion prevention and sediment control for individual lots until ownership has changed.

G. In cases with developments with 1200-C permits, the developer is responsible for erosion prevention and sediment control until the 1200-C permit is terminated by the state.

H. Temporary sediment control measures shall be removed by the developer when permanent stabilization or landscaping has been installed and is functioning.

9.0516 Certification of Compliance upon Completion of the Project

A registered professional civil engineer in the State of Oregon shall be responsible for the preparation of revised plans and the submission of as-graded plans upon completion of the project. The grading contractor shall submit, in a form prescribed by the Manager, a statement of compliance to said as-built plans. The project professional engineer shall certify all areas of compaction as meeting the minimum standards for the intended use.

Stormwater Management Requirements

9.0520 Applicability

The requirements for stormwater management are described in the Stormwater Management Manual and apply to all development that will add or replace 1,000 square feet or more of impervious area.

Non-residential development may have additional source control requirements depending upon the materials and activities planned for the site. The required improvements described in the Stormwater Management Manual apply to vehicle and equipment washing, vehicle maintenance, fueling, outdoor storage tanks, outdoor storage of bulk materials, loading docks, parking structures, and solid waste storage areas.

9.0521 Data Requirements

All development permit applications meeting the applicability conditions specified in **Section 9.0520**, and further described in the Stormwater Management Manual, shall provide sufficient information for the Manager to evaluate the applicant's intent to include on-site stormwater management in order to fully infiltrate, or at a minimum, reduce the volume and load of sediments and other stormwater pollutants to the storm sewer or natural drainage channel (e.g., stream). The applicant for a development permit shall submit a site plan and, if applicable, a stormwater report as part of their application utilizing appropriate best management practices (BMPs) and other details outlined in the Stormwater Management Manual.

9.0522 Sites Where it is Infeasible to Install On-Site Stormwater Management Facilities

On-site stormwater management is required for all development applications, unless it can be demonstrated that on-site control is not feasible based on limiting physical site constraints. If on-site management is not feasible, the Manager may allow for an off-site stormwater facility to be constructed. If an off-site stormwater facility is infeasible, then the Manager may establish payment of in-lieu-of fees that would be used by the City to fund retrofit projects to improve stormwater treatment within the city. In-lieu-of fees shall be based on estimated

capital cost for typical on-site systems, as well as assuming the typical lifecycle cost of the public stormwater facility likely to be constructed.

9.0523 Maintenance and Inspection of Private Stormwater Quality Facilities

Maintenance of private stormwater quality systems shall be the responsibility of the owner. Maintenance responsibility shall include all elements of the system up to the point of connection with a drainage structure of the public stormwater system. Such connection shall be subject to the City approval. Maintenance requirements are specified in the Stormwater Management Manual or in a recorded maintenance plan, if submitted at the time of project acceptance. Private stormwater quality facilities are subject to periodic inspection by the City to ensure proper maintenance and performance.