



A GUIDE TO SINGLE-FAMILY RESIDENTIAL SITE DEVELOPMENT

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Site Development regulations are based on the premise that development should not impact adjacent and/or downstream property owners in a detrimental manner compared to the pre-development condition. Single-family residential construction often has a negative effect on the environment. Typical construction practice consists of stripping the building site of all vegetation, and in many cases, the topsoil. This leaves the site very susceptible to severe erosion from rainfall, winds, and offsite tracking of soil. Cuts (excavations) and fills improperly constructed can also cause erosion and landslide hazard affecting not only your structure, but your neighbor's property and structures as well. Through the application of Best Management Practices (BMPs) and adhering to cut and fill regulations, sediment and runoff from construction sites can be controlled and ensure stable post-construction conditions.

New construction not only reduces the amount of vegetation and topsoil to absorb rainfall, it adds impervious surfaces, such as roofs and driveways that prevent natural infiltration. Various methods are used to retain storm water runoff on a site after a residence is constructed. In most cases, the method best suited for your lot was determined at the time of application by a Site Development Technical Support staff person. If your lot is in a flood plain, critical area, or you have poor soils, a professional engineer was required to design a storm water runoff system that meets Pierce County requirements. A Storm Drainage Requirement form has been given to you at the time of application for your reference during construction.

Access to county roads is governed by Site Development Regulations. A Driveway Approach permit ensures the availability of emergency vehicle access, proper site distance for safe exit and entrance, and protects the integrity of the county road at the point of access. The Site Development Inspector will determine the type of approach best suited for your lot at the time of the Erosion Control Inspection. Your Approach Permit, a detail of the approach to install, and special instructions will be mailed to you. (Attached is the Site Development Inspection Process handout.)

Why Erosion Control is Important

Erosion control measures are required at all construction sites in unincorporated Pierce County in order to prevent erosion/sedimentation impacts to wetland, creeks, streams, roads, storm drainage systems, and adjacent properties, public or private. The adverse impacts of poor erosion and sedimentation control are many. The following is a summary of possible impacts:

- Soil loses nutrients such as clays, silts, and fine organic matter that wash away.
- Sediment clogs storm drainage pipes, resulting in costly maintenance and decreased flow capacity. Decreased flow capacity can contribute to flooding.
- Landslides cause damage both on and off site.
- Storm drainage ponds, tanks, and vaults fill with sediment, increasing cleaning costs and downstream flooding.
- Infiltration (percolation) systems may become clogged and eventually fail. Flooding may result.
- Lakes age more rapidly. Sediment buildup contributes to algal blooms, weeds, oxygen deprivation, and fish kills.
- Loss of aesthetics. Many citizens value clean streams and lakes. An eroded, silt-clogged stream or lake is an eyesore.
- Turbidity (water cloudiness) increases. Turbidity impairs the ability of aquatic species to feed and clogs gill passages. It also decreases the amount of sunlight necessary for photosynthesis to aquatic plants.
- Fish spawning habitat is seriously impacted. Sediment covers gravel beds necessary for spawning and juvenile development.

Preventing Erosion is Easy

This section contains instructions needed by builders on most home sites to control off-site migration of soils and materials and to prevent undesired on-site migration of sediments. Additional controls may be needed for sites having steep slopes, located adjacent to lakes, streams, wetlands, or receive high volumes of runoff from adjacent land. The materials needed are easy to find and relatively inexpensive: quarry spalls, straw bales, silt fencing, stakes, gravel, plastic covering, and grass seed. Proper use and placement is a straightforward process. (See Detail #1 of the attached Site Development Inspection Process) Most sites only need a few controls. The following is a description of what to do to prevent erosion problems:

- Use a construction entrance for all vehicles to limit tracking of mud onto streets. Minimize the number of vehicles traveling/parking on bare soil. Park vehicles on pavement or at construction entrances. (See Detail #2 of the attached Site Development Inspection Process).
- Provide a barrier (temporary fences) to limit access to the construction entrance only.
- Downstream catch basins need to be protected with inlet protection.
- Silt fencing or straw bale barriers must be properly installed to trap sediment on the down slope side of the lot. (See Detail #3 of the attached Site Development Inspection Process).
- Locate material stockpiles away from any roads or watercourses and cover with plastic.
- Clean up sediments carried off-site by vehicles or storms.
- Preserve existing trees and vegetation where possible to prevent erosion and decrease the amount of runoff from the site.
- Revegetate the site as soon as possible.

Use of these common sense measures will greatly reduce or eliminate erosion off the site and reduce any impacts to the surrounding environment and storm water conveyance system. Final or post-construction stabilization is required in order to approve your final Site Development inspection. No erosive surfaces draining directly off site shall be left unprotected. See the Inspection Guideline Chart on page two of the attached Site Development Inspection Process for additional erosion control and final Site Development inspection criteria.

Why Cut and Fill Requirements are Important

Creation or modification of slopes as a result of cutting (excavating) or filling can result in problems if improperly constructed. The following is a summary of some of the impacts:

- Steep-graded slopes increase the potential for erosion and landslide.
- Creation of cut and fill slopes too close, or over property lines can impact your neighbor's rights.
- If overly steep cuts are created at the property line, portions of your neighbor's property may become unstable.

- If an overly steep fill is next to a property line, erosion or sloughing may damage your neighbor's property.

Cut and Fill Excavation Standards

Cut Slopes shall be no steeper than is safe for the intended use and shall not be steeper than 2 horizontal to 1 vertical. The catch point of the top of the slope shall be set back from the site boundary line in accordance with the following table, unless a retaining wall is designed by a professional engineer and constructed for the project. Retaining walls in excess of 4 feet in height require a Building Permit.

Setbacks from Property Line:

<u>Cut Depth</u>	<u>Setback Distance</u>
Under 5 Feet	2 Feet
5 – 20 Feet	Height/2
Over 20 Feet	10 Feet

Fill Slopes shall be no steeper than is safe for the intended use and shall not be steeper than 1-1/2 horizontal to 1 vertical, or as recommended by a soils engineer. Fill sites must be approved by the engineer as suitable locations for the proposed fill. No material other than earth material shall be placed in fills. Fills shall be constructed using earth material, compaction methods, and construction techniques so that stable fills are created.

The toe or catch point of fill slopes shall be set back from the site boundary line in accordance with the following table unless a retaining wall is designed by a professional engineer. Retaining walls in excess of 4 feet in height require a building permit.

Setbacks from Property Line:

<u>Fill Depth</u>	<u>Setback Distance</u>
Under 5 Feet	2 Feet
5 - 40 Feet	Height of Fill
Over 40 Feet	20 Feet

Following these guidelines or your approved Erosion and Drainage Plan will help to preserve the environment and assure no adverse impacts to adjacent properties due to your project. More helpful information on how to prevent erosion is in the attached Site Development Inspection handout used by the Site Development inspectors. This handout also explains the Site Development inspection process.