

# Steep Slope Hazard Areas

## GEOLOGICALLY HAZARDOUS AREAS

### WHAT IS A STEEP SLOPE HAZARD AREA?

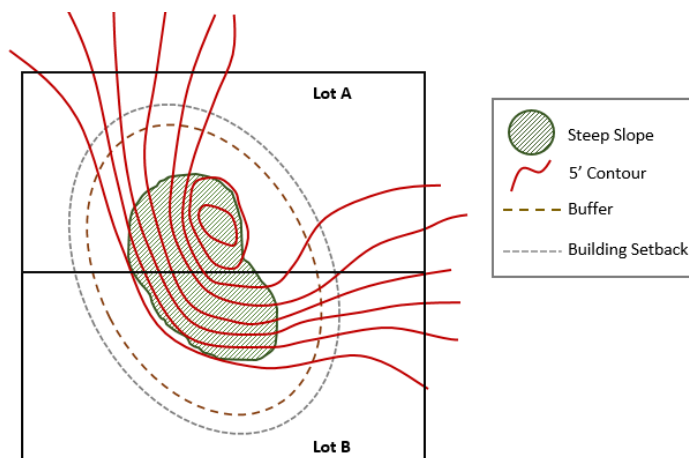
- A steep slope hazard area is an area with slope gradients that inclines 40% or more and has a vertical elevation rise of 10 feet or more.
- The “top” and “toe” of a slope are distinct points where the inclination changes from more than 40% to less than 40% at both the top and bottom of a slope (see Fig. B).

### HOW IS A STEEP SLOPE DELINEATED?

**Note:** The most accurate method of measuring slopes is to have a topographic survey prepared by a licensed surveyor. The City may require such a survey in order to conduct the review of a development proposal.

- A slope is delineated on a property by determining if and where the ground rises 10 feet or more along 25 feet of horizontal distance. The sides of the slope are also determined as part of the delineation.
  - As with all critical areas, steep slopes can be located on more than one property (See Fig A, below)
- Slope inclination is measured as a percentage: the vertical rise divided by the horizontal distance, multiplied by 100 (See Fig B, below)
  - For example: a 100% slope has one unit of vertical rise for each unit of horizontal distance.  
A 40% slope has 4 units of vertical rise for each 10 units of horizontal distance.  
 $(40 \text{ feet vertical rise} / 100 \text{ feet horizontal distance}) \times 100 = 40\%$
- Slopes are sometimes measured in degrees. A 100% slope is equivalent to 45 degrees, but a 40% slope is roughly equivalent to 22 degrees.

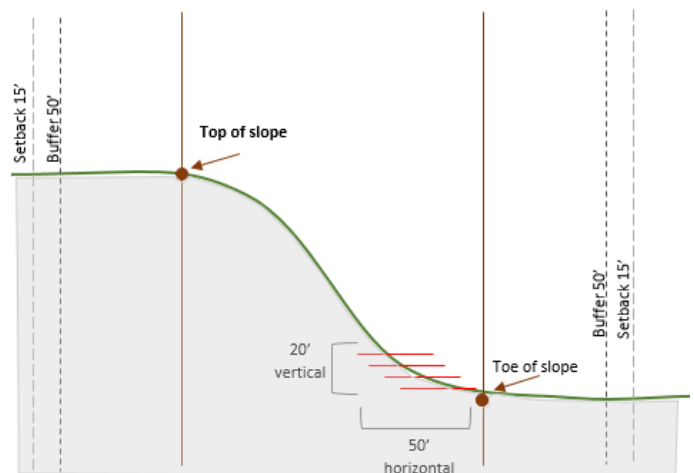
Fig. A – Multi-lot Steep Slope Area with Buffers & Setbacks



**Note:** Buffers & setbacks for at steep slope are required surrounding that area that is calculated at a 40% slope (top, toe, and sides)

Drawings not to scale

Fig. B – Slope Measurement Example with Buffers & Setbacks



- STANDARD BUFFER = 50'
- MINIMUM REDUCED BUFFER = 25'
- REQUIRED BUILDING SETBACK FROM BUFFER = 15'

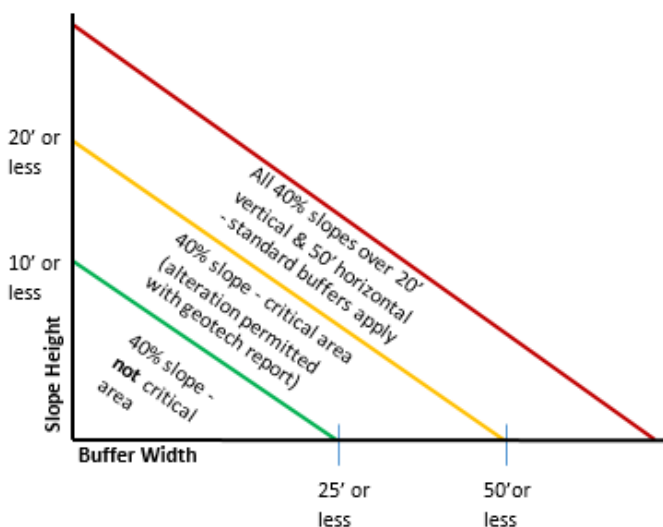
**PROTECTION OF STEEP SLOPES**

- Code requires that critical areas be surrounded by a “buffer” of land, which protects them from human activities (see illustration, above). Many activities, including clearing and grading, are not allowed within this buffer or within the critical area itself.
- The standard buffer for steep slope hazard areas is 50 feet from the top, toe, and sides. In addition, a building setback of 15 feet measured from the edge of the buffer is also required.
- The buffer for steep slope hazard areas may be reduced to a minimum of 25 feet when a qualified professional demonstrates to the satisfaction of the Planning Director that the reduction will adequately protect the proposed development, adjacent developments and uses, and the steep slope hazard area. The additional building setback of 15 feet will still apply.

**EXEMPTIONS**

- Steep slopes that are less than 10 feet in vertical height are exempt from critical area permitting requirements (Fig. C).

**Fig. C – Treatment of 40% Slopes of Varying Height & Width**



**PERMITTED ALTERATIONS**

Development activity in steep slope hazard areas may be permitted when the following conditions are met:

- Alteration of slopes that are 40 percent or steeper with a vertical elevation change between 10 to 20 feet; provided that a soils report prepared by a qualified professional satisfies the planning director that no adverse impact will result from the exception
- Any slope that was created through legal grading activity may be re-graded as part of an approved development plan, provided that any slope that remains 40 percent or steeper following site development shall be subject to all requirements for steep slopes
- See Geotechnical Reports information bulletin for more information.

All protected steep slope hazard areas must be well marked on site prior to any construction activity. All permitted alterations are subject to conditions and requirements administered through a [Critical Area Work Permit](#). Permitted alterations may include vegetation removal or introduction (see below), utility placement, view creation and existing structure modification.

## VEGETATION REMOVAL OR INTRODUCTION

- In a steep slope hazard area, vegetation acts as an anchor for the soil. The roots of the vegetation secure the soil, reducing erosion and the possibility of a landslide thereby protecting property, the environment and the health and safety of the public. Consequently, vegetation must remain in place in steep slope hazard areas unless it is a part of an approved alteration or restoration plan.
- Vegetation cannot be removed from a steep slope critical area or the buffer except for land surveying purposes or for the removal of hazard trees. Both activities require a permit.
- If a slope has been disturbed by human activity or is infested by noxious weeds, planting of native species or other appropriate vegetation may be allowed according to an approved vegetation management plan. A critical areas work permit is required for the use of pesticides.
- Contact the Planning Department for information regarding permit requirements for vegetation removal or introduction. Any allowed alterations must be approved by the Planning Department before the plant removal or introduction activities are begun.

## UTILITIES

- Construction of public and private utilities may be allowed on steep slopes, provided that a [special study](#) by a qualified geologist or geotechnical engineer shows that no risk to the critical area will occur.

## VEGETATION AND VIEW MAINTENANCE ON STEEP SLOPES

- Limited trimming and pruning for views may be allowed. However, the alteration must follow an approved vegetation management plan and not disturb the soils.

## EXISTING STRUCTURE MODIFICATION

- An existing structure may be reconstructed, remodeled or replaced if the modification does not increase the existing footprint of the portion of the structure lying within the buffer or setback by more than 10 percent and by more than 250 square feet. No portion of the modification may be located closer to the critical area or intrude further into the buffer.

## ESTIMATION TECHNIQUES

Several instruments can measure slope inclination:

- A “clinometer” is a handheld instrument that can quickly and accurately determine inclination in both percentage and degrees.
- An inexpensive option is a type of hand held compass with an added device for estimating slopes. This, however, measures only in degrees and is not as accurate.
- Another common method is use of a transit for measuring vertical angles

[King County iMap](#) can also help determine topographical steep slope information.

### Questions?

For more information, please contact the Planning Department  
[aplanner@cityofflp.com](mailto:aplanner@cityofflp.com)  
 206-957-2837

### Access to Information

Electronic versions of all forms, permits, applications, and codes are available on the Lake Forest Park website:

<http://www.cityofflp.com/>

Paper copies are available at City Hall:

17425 Ballinger Way Northeast, Lake forest Park, WA 98155

**DISCLAIMER:** The information contained herein is meant to provide general information about Steep Slopes. This summary is not a substitute for the actual codes or regulations, and does not include information pertaining to other land use and building permit requirements and procedures. Environmentally Critical Area requirements can and do sometimes change after action by the City Council. Interested parties should always verify current requirements with the City Planning Department.