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**SHORELINE MANAGEMENT
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Washington
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Living on the Edge – and Beyond

Puget Sound's scenic shorelands afford stunning views of mountains and waterways. Coastal home sites are coveted properties, but they are also often unstable and hazardous places to live. You may be one of the many bluff property owners who have recently come to realize just how precarious your dream home is. You may have learned not to take "solid ground" for granted.

The winter of 1997 brought severe and numerous storms followed by intense runoff from rain-on-snow on New Year's Eve, causing unprecedented flooding and landslides. Additional sliding occurred well into spring, as slopes remained saturated. You may be one of the many residents throughout the region still assessing the damage and faced with attempts to repair and stabilize severe landslides and erosion.

Why did this happen? While the immediate cause was too much water too quickly the number and severity of earth failures experienced throughout the region resulted from a complex combination of causes. Steep slopes, saturated soils, surface water drainage, marine erosion, inadequate vegetation cover, and past management and development practices all contributed to the damage.

Many of that winter's slumps, slides, and flooding were triggered by the severe winter conditions but were actually initiated by past poor land management practices. It is equally likely that slope failures that were initiated then now await the next triggering conditions. You would be prudent to realize that it is time to get educated and make changes in how you

manage your property. Learn what processes affect your land and how to most economically reduce future risks.

Retaining walls, bulkheads, and drainage measures are engineering fixes that have been used to stabilize recent, obvious major slumps and slides. However, you may have looked around and noticed that relatively undisturbed, well-vegetated slopes with trees and shrubs fared appreciably better than heavily cleared areas in the same area. In many cases, replanting bare or poorly vegetated slopes can furnish erosion control that will become more effective with time. Engineered solutions alone are strongest when built and become progressively weaker over time, while vegetative measures are weakest when planted and become stronger as plant roots develop. Often, a combination of engineered solutions and tree and shrub planting provides the most cost-effective, long-term remedy. In combination, the two approaches complement each other.

Unfortunately, it is possible that the damage caused by a combination of natural processes and poor management has progressed beyond the point of realistically stabilizing the site. It may be that relocating your home may be the only practical solution.

Even if your property appears to have escaped unscathed, you should seriously consider having the uplands, bluff and beach assessed for potential stability problems and poor management practices. There may be relatively simple things you can do to dramatically reduce future risks, such as maintaining roof drains in good condition and planting bare spots.

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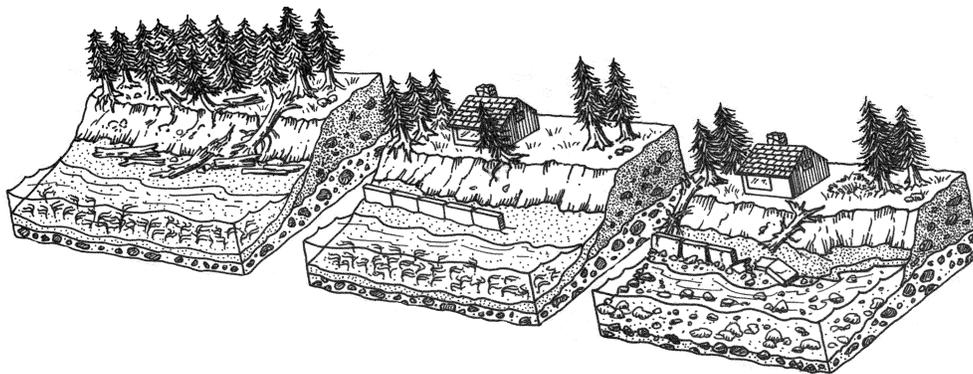
Examine your site. If you see indications of erosion, minor slumps, gullies, tension cracks, or other signs of change, then have them investigated before severe failures occur. These tell-tale clues should not be ignored. Early measures undertaken to prevent or reduce erosional losses can save you the substantial amount of money repairing or stabilizing a massive slope failure will cost. It will also relieve you of the anxiety of not knowing just how close to the edge you are living.

Given the often unstable nature of the region's shorelands, slope failures are a fact of life around Puget Sound and can be expected to continue. You assumed the risk (whether you knew it or not) when you bought or built there. You can reduce that risk by careful and informed site planning, development, and management.

Following is a list of common development practices that are guaranteed to transform your dream home into a nightmare. Try to avoid these practices as you develop a shoreline site. Learn to identify them when looking for a developed bluff home.

RECIPE FOR DISASTER

- Buy potentially hazardous property without considering the risks
 - Build on a lot too small to allow a safe setback
 - Ignore the watershed characteristics of the area
 - Clear and grade extensively
 - Alter existing drainage patterns
 - Install cheap drainage components
 - Push all clearing debris over the slope crest
 - Cut or top all the trees on the bluff crest and slope
 - Use herbicides generously to kill brush
 - Bring in fill material when the ground is wet
 - Site the house and the septic system close to the slope
 - Dump construction debris over the bank
 - Install extensive lawns and gardens
 - Neglect to leave a buffer of native vegetation at the bluff crest
 - Plant English ivy on the slope and hydro-seed grass
 - Pave extensively
 - Dump yard wastes over the bank
 - Never inspect roof drains, down spouts, drainage lines, etc.
 - Cut into slopes to afford beach access
 - Ignore signs of erosion until the problem becomes severe
 - Believe it won't happen to you
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