

landslides

keys to better awareness

Land slides are caused by geological conditions, drainage characteristics, slope gradient and configuration, vegetation, removal of underlying support, land use, and other conditions specific to each landslide-related category.

Most landslides are classified as active or dormant. The active, or likely active, slides are those that are presently moving or have recently moved. Major re-vegetation has not occurred on slides in the active category. Dormant slides show little evidence of recent movement; slide features have been modified by weathering and erosion and vegetation generally is well established.



types of slides -----

Translational/Rotational Slide

The translational/rotational slide is characterized by a somewhat cohesive slide mass and a failure plane that is relatively deep when compared to that of a debris slide of similar size. Translational/rotational slides generally occur in relatively cohesive, homogeneous soils and rock. Impaired drainage of slide deposits may be indicated at the surface by numerous sag ponds with standing water, springs, and patches of wet ground. Surface water should be diverted away from the slide mass and scarp areas, and long-term maintenance should be considered in the planning of site specific drainage problems.

Debris Slides

A debris slide is characterized by unconsolidated rock and soil that has moved down slope along a relatively shallow translational failure plane. Debris slides form steep, un-vegetated scars in the head region and irregular, hilly deposits (when present) in the toe region. Debris slide scars are likely to ravel and remain un-vegetated for many years. The main objectives for debris slide management are to retain root support, minimize water flow along the soil/rock interface, avoid the undercutting of materials to the slide plane, and minimize

the weighting of unconsolidated materials on steep slopes. Road construction across debris slides should be avoided, where possible, and existing roads should be used instead.

Debris Flow/Torrent Track Slides

Debris flow and debris torrent tracks are characterized by long stretches of bare, generally unstable stream channel banks that have been scoured and eroded by the extremely rapid movement of water-laden debris. They commonly are caused by debris sliding or the failure of fill materials along stream crossings in the upper part of a drainage during high intensity storms. They are often triggered by debris slide movement on adjacent hill slopes and by the mobilization of debris accumulated in the stream channels themselves.

Debris Slide Amphitheater/Slope Slides

Debris slide amphitheatres and slopes are geomorphic features in which slopes have been sculpted by numerous debris slide events and slopes are characterized by generally well vegetated soils and accumulated debris above a shallow soil/bedrock interface. The slopes may contain areas of active debris sliding or bedrock exposed by former debris sliding. To help prevent debris amphitheater

slope slides: retain root support; minimize water concentration in areas where soils are well developed; and avoid large, continuous openings on steep slopes at any given period of time.

Inner Gorge Slides

An inner gorge is a geomorphic feature formed by coalescing scars originating from landslide and erosional processes caused by active stream erosion. Inner gorges are formed mostly by debris slide processes that have been activated by the down cutting of stream channel bottoms. Because un-vegetated scars are likely to ravel, root support and vegetation are important to the overall slope stability.

Earthflow Slides

An earthflow is a landslide resulting from slow to rapid flow of saturated soil and debris. After initial failure, the earthflow may seasonally move, or creep, in response to destabilizing forces. When saturated, the fine-grained, clay-rich matrix may carry larger, more resistant boulders with them in slow, creeping movements. Continued maintenance of drainage is recommended for major road construction across all earthflows.

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Funding for this project has been provided in part by the California Department of Fish and Game and the U.S. Environmental Protection Agency (USEPA) pursuant to Assistant Agreement No. C998998901-0 and any amendments thereto which had been awarded to the State Water Resources Control Board (SWRCB) for the implementation of California's Nonpoint Source Pollution Control Program. The contents of this document do not necessarily reflect the views and policies of the USEPA or the SWRCB, nor does mention or trade names of commercial products constitute endorsement or recommendation for use. This project and all projects in this series are available on our web site at <http://www.mattole.org>.