## Introduction

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FACTORS AFFECTING SLOPE FAILURE

Geological discontinuities

- Bedding plane
- Schistosity
- Foliation
- Joint
- Cleavage
- Fracture
- Fissure
- Crack
- Fault plane
Geological discontinuities

Effect of discontinuity orientation on the types of slope failure

Effects of persistence on slope stability
The effect of water on rock slope

The water applies horizontal and vertical pressure along the discontinuities. It discontinuity reduces the effective normal stress acting on the plane.

Water is also wash away the filling material between discontinuities.
Effect of water on unconsolidated material

- **Dry Sand**: Angle of Repose, Grain to Grain frictional contact.
- **Wet Sand**: Angle of Repose, Surface tension of thin film of water holds grains together.
- **Water Saturated Sand**: Water completely surrounds all grains and eliminates all grain to grain contact.
Geotechnical Properties of Material

Shear testing of discontinuities or between two plane

Patton’s experiment on the shear strength of saw-tooth specimens.
Preparation of foundation, method of stripping, placement and rehandling of dump material.
high in-situ stresses may be present within the rock mass. High horizontal stresses acting roughly perpendicular to a cut slope may cause blocks to move outward due to the stress relief provided by the cut.
Geometry slope:

Effect of slope angle on slope stability
Two aspects of erosion need to be considered from slope stability point of view. The first is a large scale erosion, such as a river erosion occurring at the base of a slope. The second is a relatively localized erosion caused by groundwater or surface runoff.
Seismic waves passing through rock adds stress which could cause fracturing in the rock mass. As a result, friction is reduced in unconsolidated masses as they are torn apart which may induce liquefaction. Landslide is one of the major hazards resulting due to earthquakes.
Vegetation

Mechanisms of root reinforcement of grass plants and tree