OUTER CAPE ENVIRONMENTAL AWARENESS NEWSLETTER

UNDERSTANDING HYDROSTATIC PRESSURE IN SLOPE STABILIZATION, 2018

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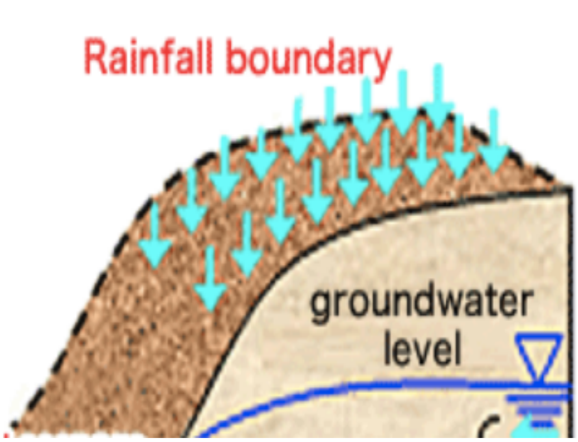

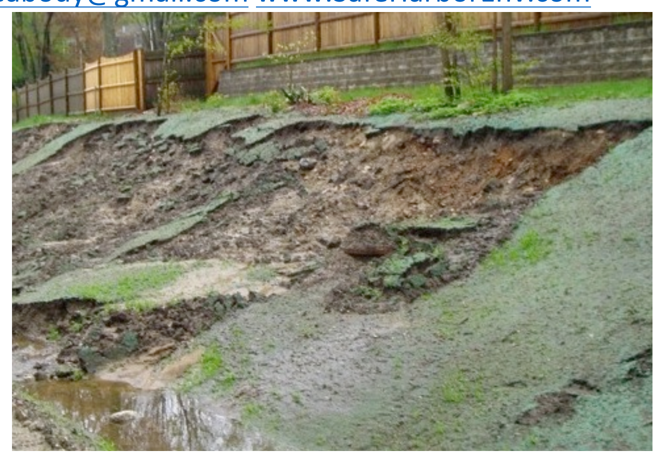

We use **Natural Systems** as models for stabilizing steep slopes (*image on left*). The ability to manage rain water is a critical factor in successful stabilization. Rain flows down a **gravity path**: from cloud; to vegetation; into the Earth; and down to the ground water table (*image upper left*). Uninterrupted flow, is essential for successful performance. Failed restorations (*image upper right*) depict the consequences of making changes to the model. In the above case, a dense, seeded loam layer changed surface permeability, generating runoff. This additional volume and weight of water moves down slope, flooding into any openings. **Hydrostatic Pressure** liquefies subsurface sediment, collapsing the slope.

Images by Gordon Peabody. Upper left shows “Benching” technique to trap, infiltrate & control rain *water. Upper right shows enhanced mitigation, using biomimicry shims and jute netting if necessary.*

Images by Safe Harbor. Upper left shows first growing season, early stabilization, with multiple mitigation strategies. Upper right shows second year, high diversity sustainable stabilization.

Slope stabilization becomes sustainable within a few years, as diversity and rain water infiltration improves performance for habitat, storm water and slope stability. Layers of subsurface roots and multi levels of vegetation, mimic the natural slopes we use as models. Each slope has unique, site specific characteristics of: light; angle; contributing flow; access; and linkage to scale. It is the unmanaged weight and volume of upper slope sheet flow that creates **Hydrostatic Pressure**.