Part 2

NATURAL SLOPE CREEP

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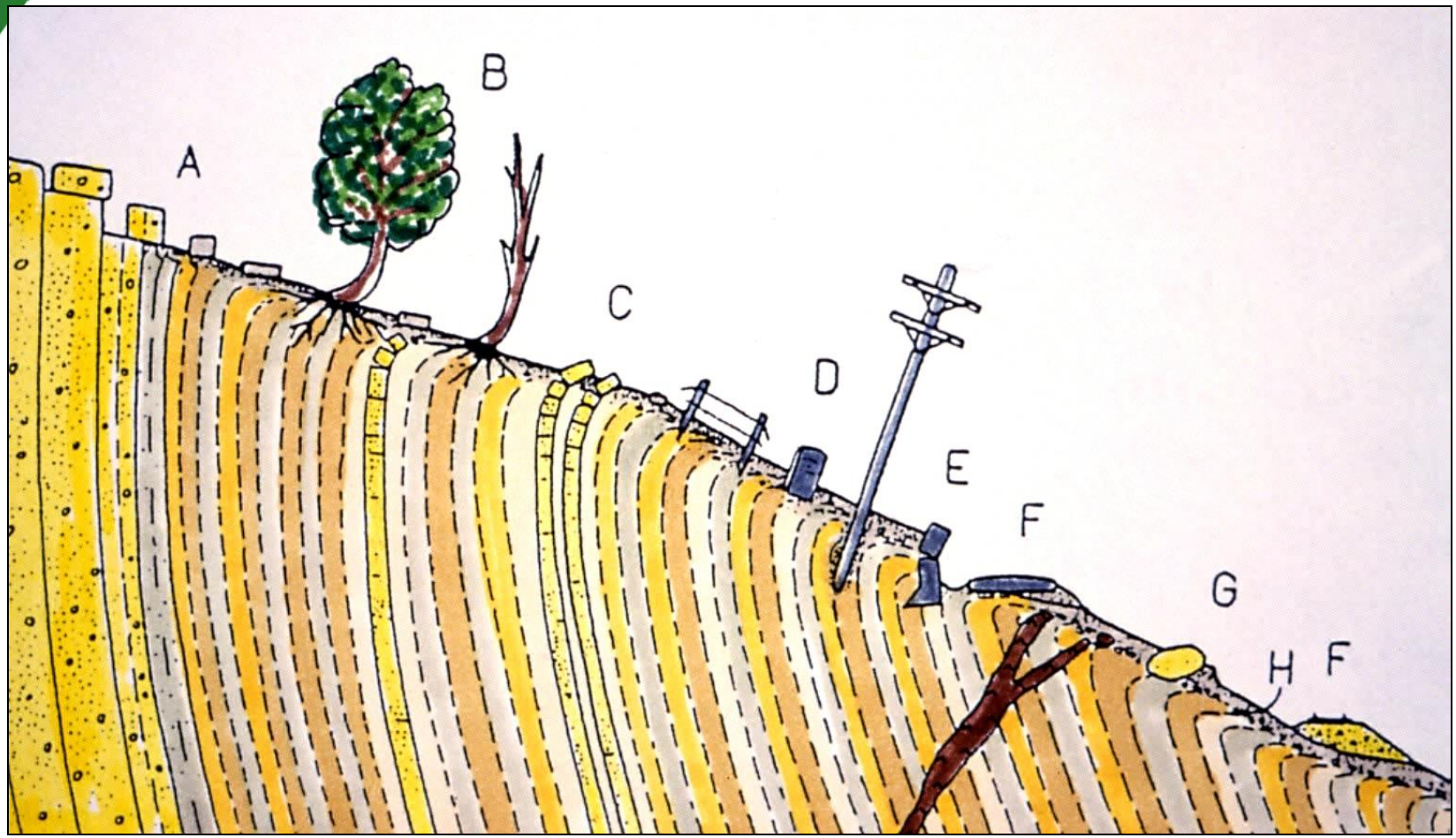

- **Seasonal down-slope creep tends to decrease with increasing depth into the slope, as shown here (from Sharpe, 1938)**
- **It affects all types of structures and natural features**

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Slope creep inhibits functionality

- Slope creep observed along westbound onramp of Interstate 44 at Exit 185 in Rolla, MO. Note sever slope of the concrete sidewalk and guardrail posts (inset), making it dangerous to use. Slope creep is usually most severe at the crest of a descending slope, as shown here.

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- Evidence of seasonal downslope creep abounds, provided we have some frame of reference for measurement, such as these telephone poles.
- Embankments must be designed to account for seasonal creep and weathering effects

- **Soil and sedimentary rock are susceptible to rapid weathering and downslope creep; defined as strain under sustained load. Here is a fresh highway cut in Cretaceous age sandstone and siltstone, as viewed in 1954.**

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- **This is the same cut 33 years later, in 1987. The mid-slope bench and brow drainage interceptor ditch are gone. Plastic materials are subject to rapid weathering and erosion.**

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- **Shoulder cracking** is a common problem of pavements on descending embankments, caused by downslope creep, consolidation, and/or expansive soils heave and desiccation cycles.

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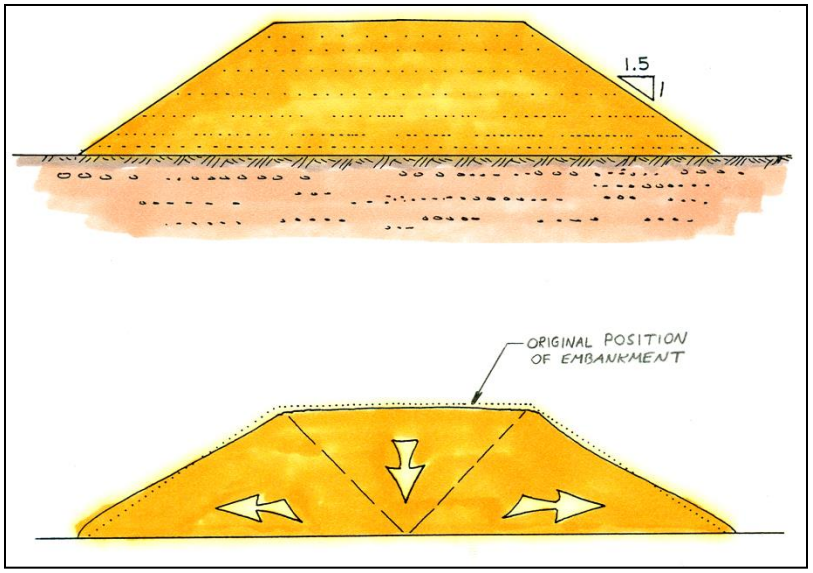
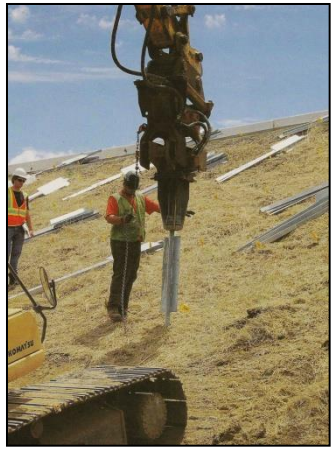
Mitigating Slope Creep using plate piles



Richard D. Short, PE, GE received his BSCE in 1966 from Nevada-Reno and MSCE in 1972 from U.C. Berkeley



One of the emerging technologies to combat slope-creep driven pavement distress is to install galvanized "plate piles," installed by tracked excavators, as shown here . These were invented by Bay Area geotechnical engineer Dick Short of California and marketed by his firm *Slope Reinforcement Technology*, based in Oakland, California.

- **Slope creep** exerts its greatest impact on those improvements placed on, or close to, the slope face. Notice the tilted posts supporting this deck.

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