Part 7

FILL-OVER-CUT,
STABILITY FILLS, SUBDRAIN NOMENCLATURE
AND RECOMMENDED STANDARDS

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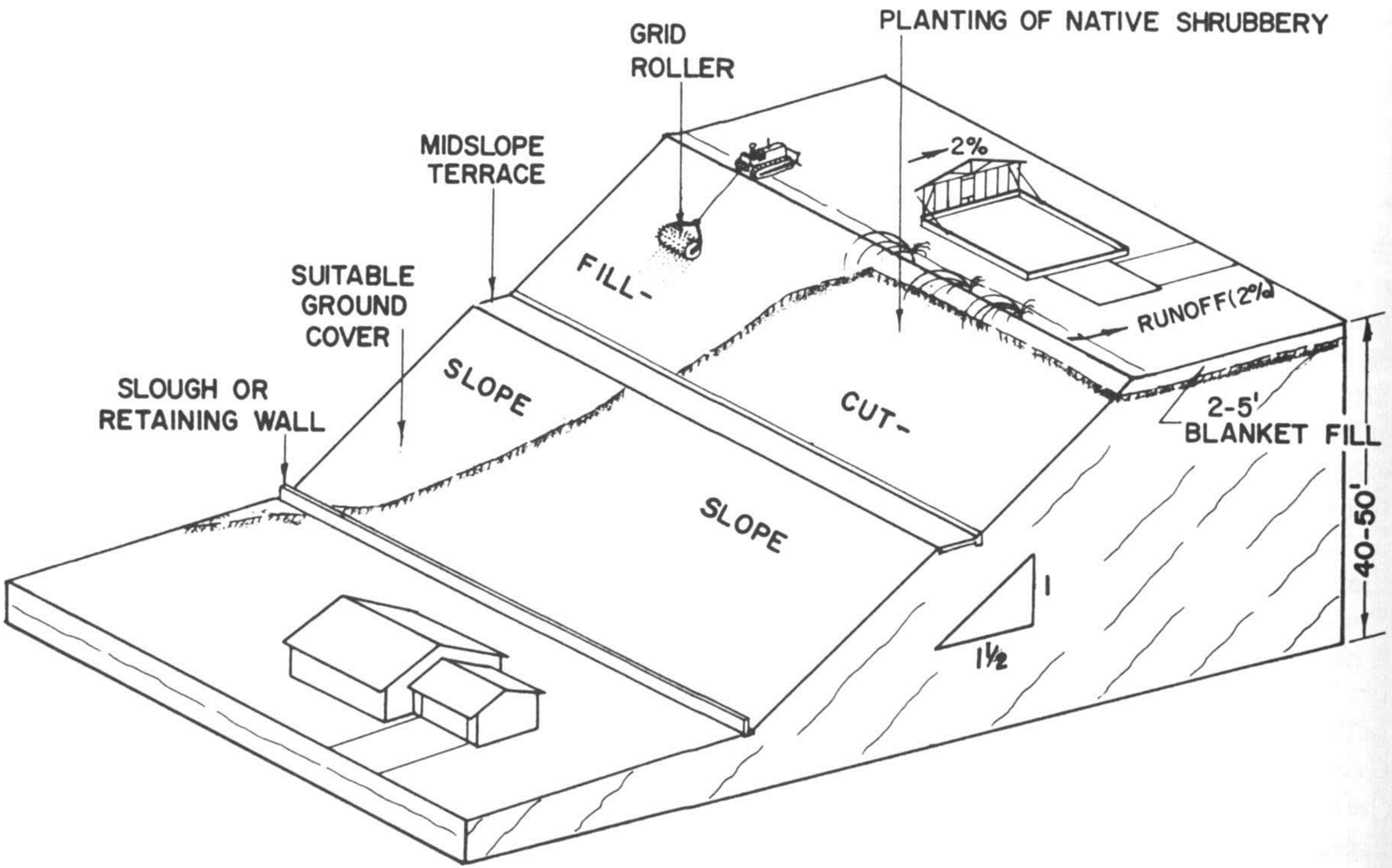
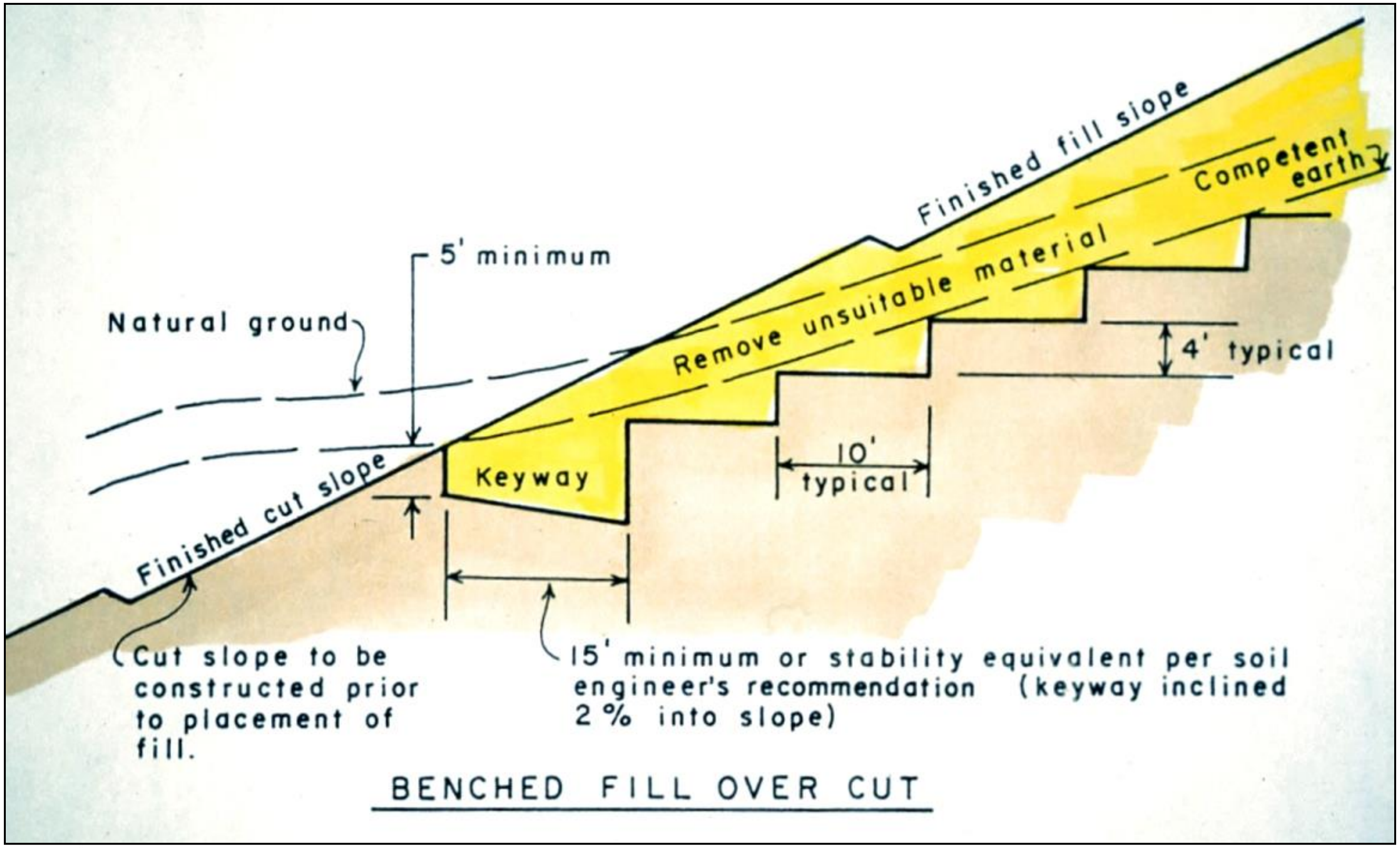


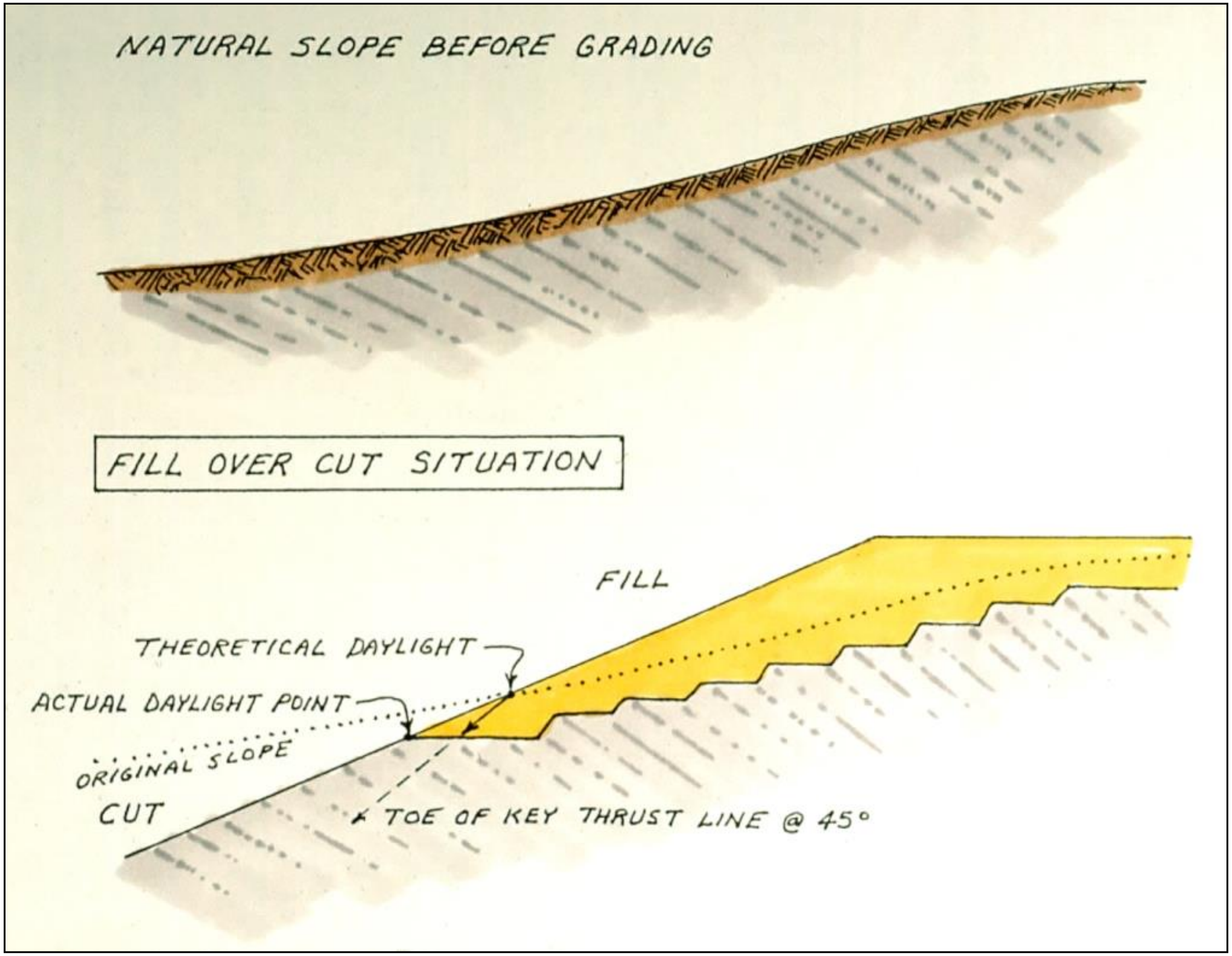
- **Classic Fill-over-cut situation created by mass grading of hilly areas.**

FILL OVER CUT



- **Fills placed above cut slopes are a special case that demands attention to details, especially overexcavation. This shows the design standard employed by Orange County in the late 1960s.**

- **Fill over cut** situation where the topsoil was not adequately overexcavated, leaving a potentially low strength horizon between the cut and the fill.



- The **toe-of-fill keyway** on a fill-over-cut situation should be excavated across the entire bench, as shown above; so a small island of native material will not be left between the cut and fill.

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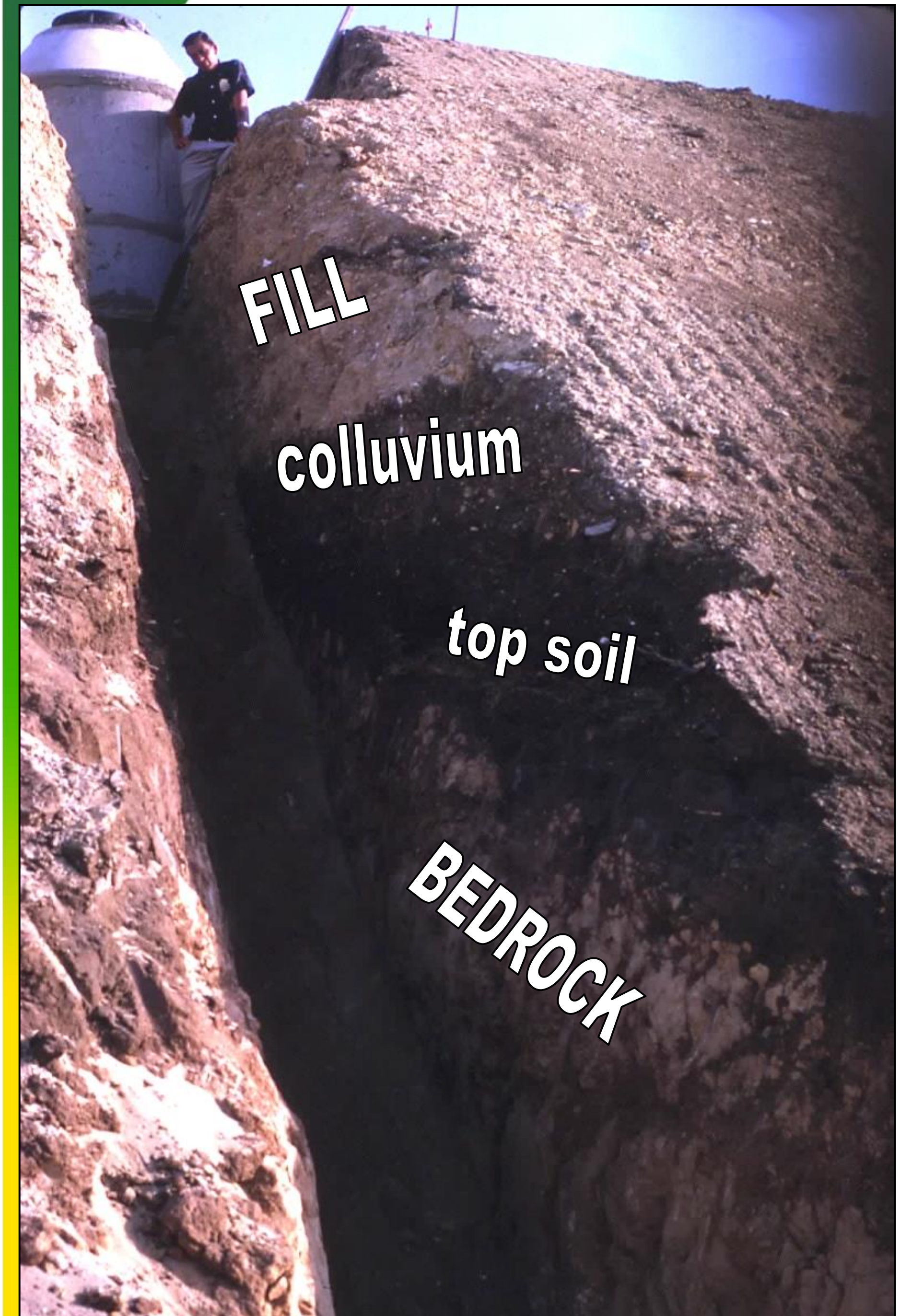
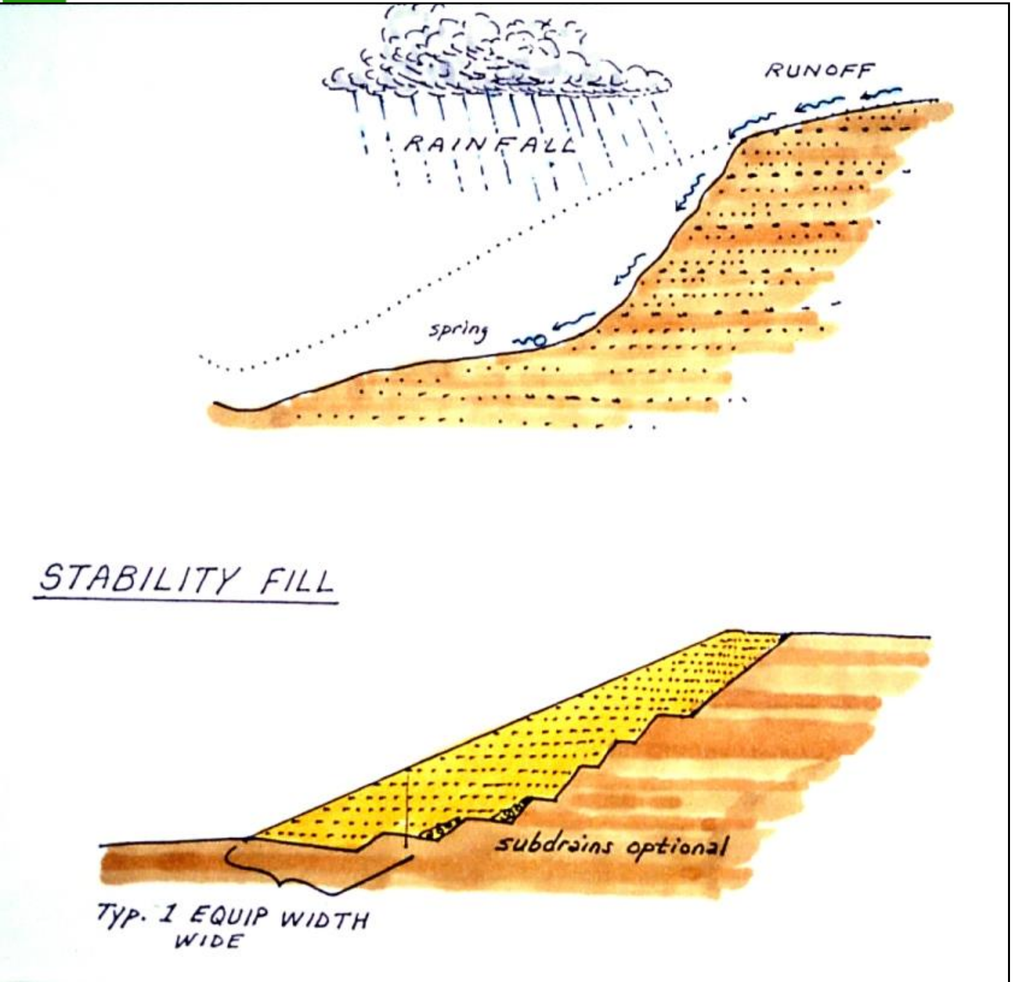
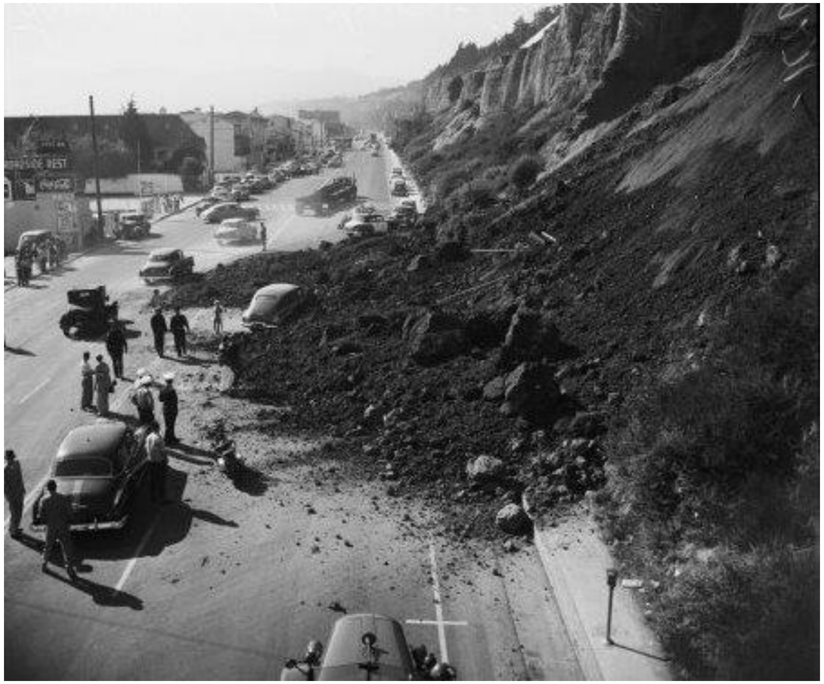


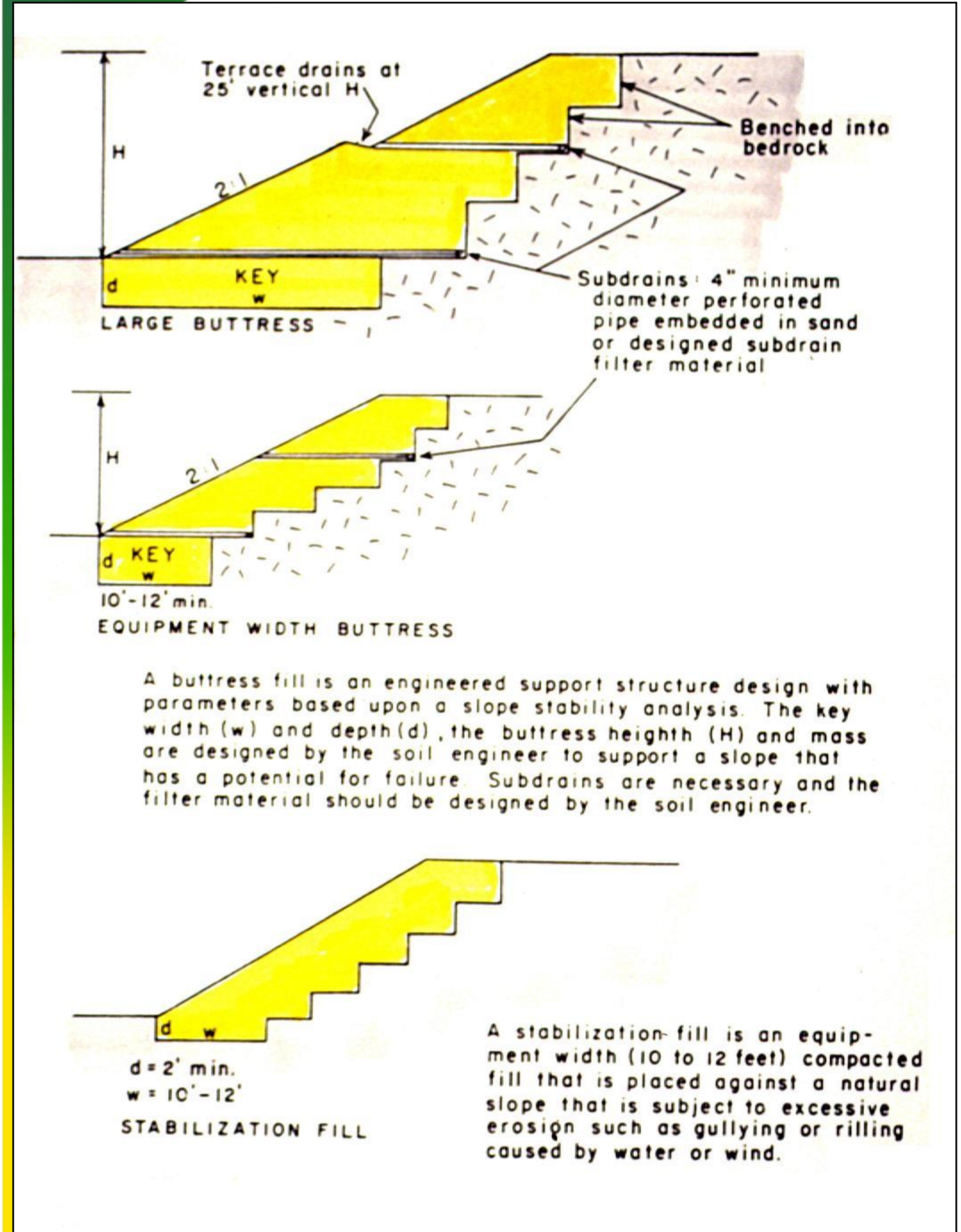
- Inadequate **cut-over-fill** situation revealed in utility trench for sewer-storm drain.
- This view shows engineered fill over a thick sequence of native soils and weathered rock
- This points to the reason why on-scene grading inspection is so important during construction

Stability Fills

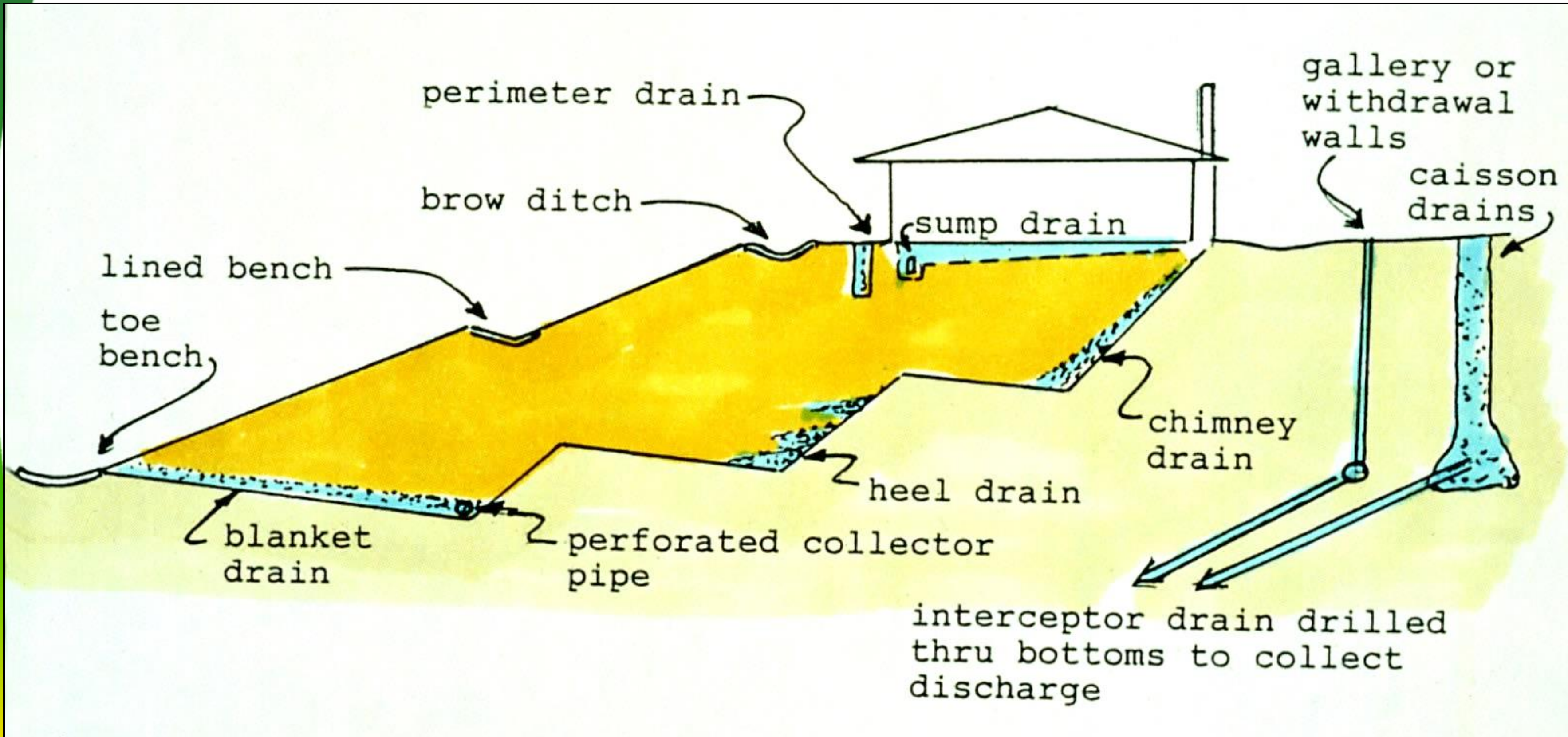




- **<u>Stability fills</u> are engineered fill embankments constructed against *potentially unstable* or *actively eroding* slopes**
- **They are typically fairly narrow, with limited subdrainage.**



- **Typical design standards for stability fills**
- **The may be fairly thin, down to just one equipment width (10 to 12 ft)**
- **Subdrainage should be employed if evidence of past seepage is noted during excavation**



- **Colloquial terminology used to describe various kinds of subdrainage measures.**
- **You can never have too much subdrainage, but you can often have too little**

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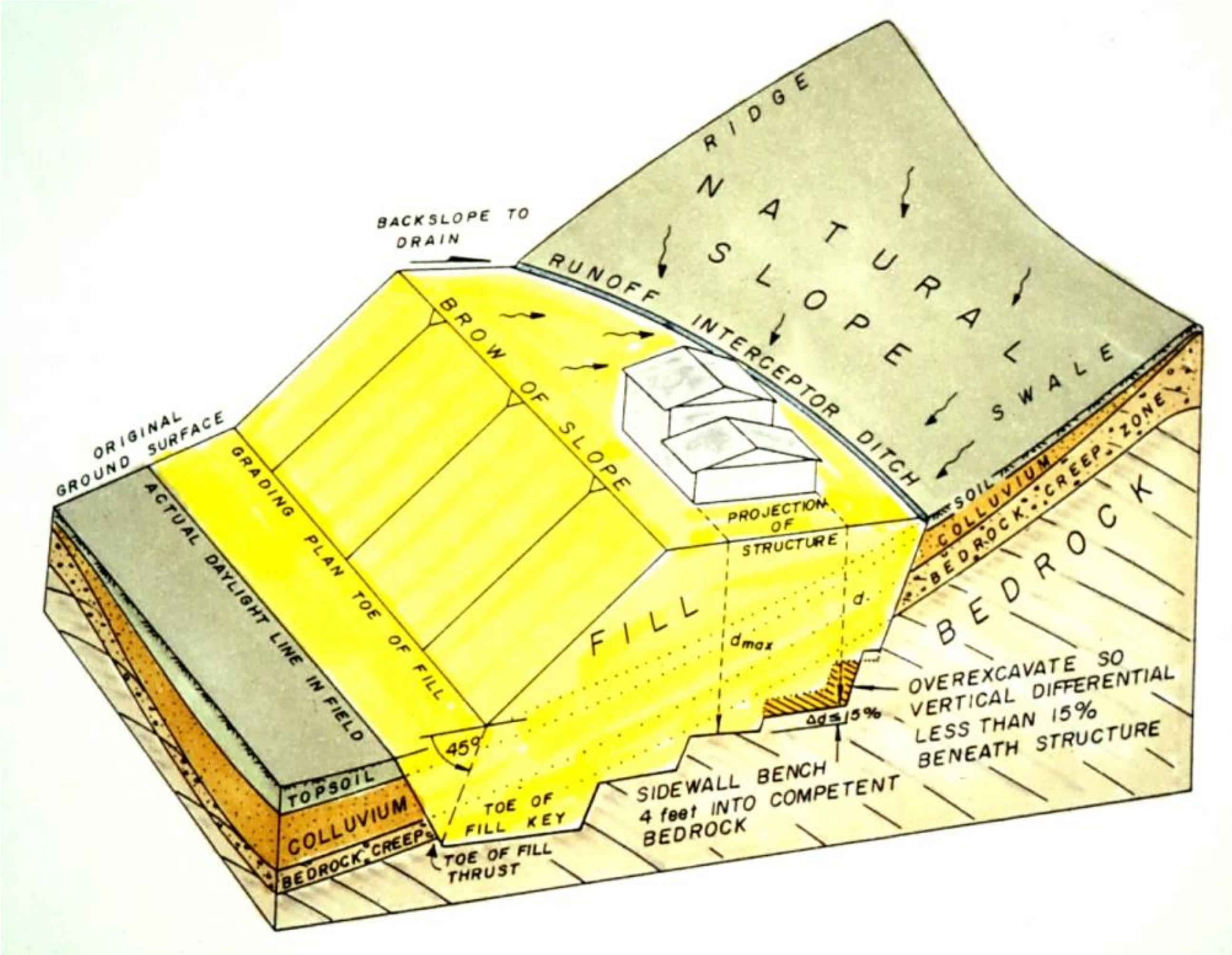

- **Recommended standards for sidehill embankments supporting structures, taken from Rogers (1992). Note 15% vertical fill differential beneath structural footprint**

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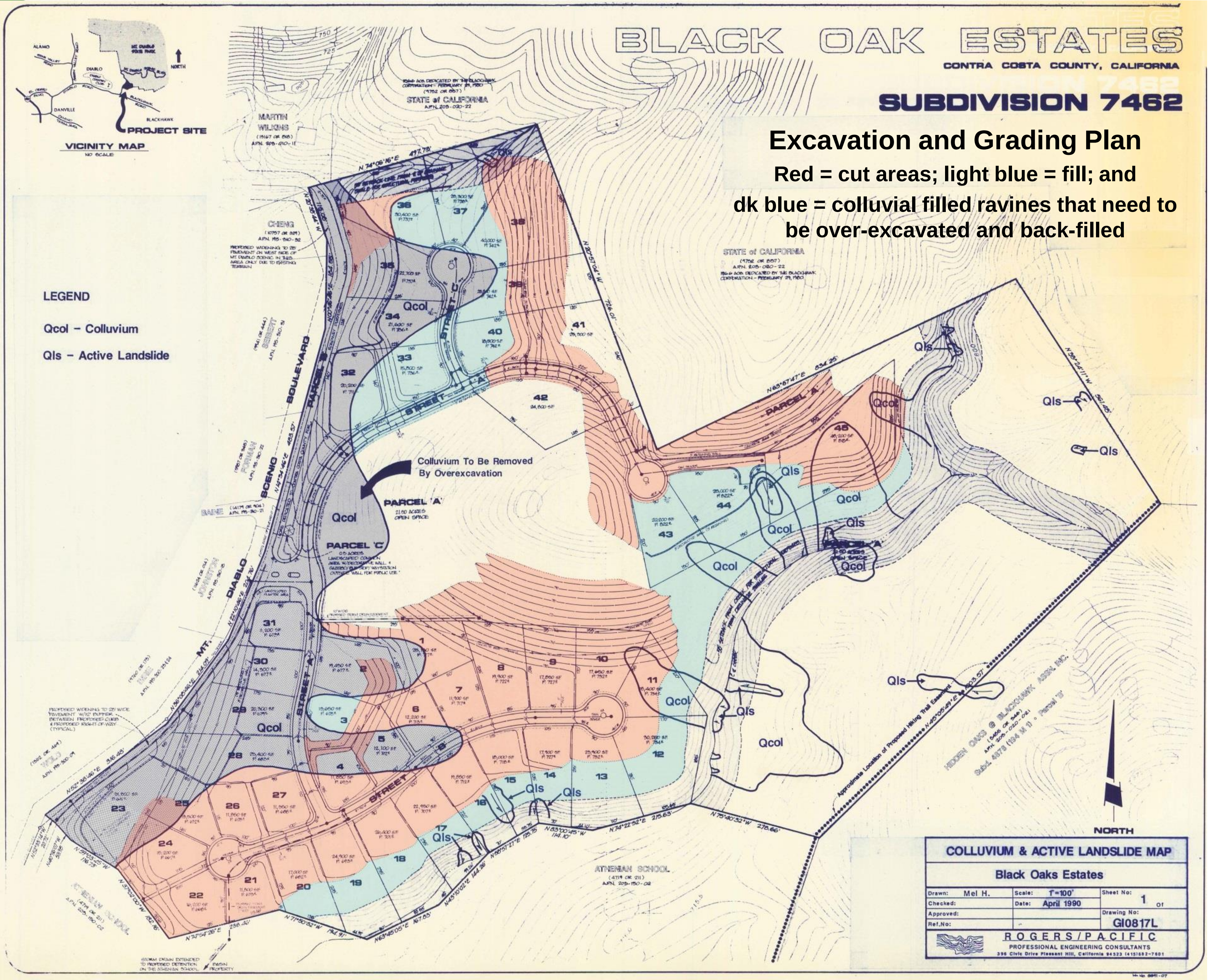
Excavation and Grading Plan

Red = cut areas; light blue = fill; and dk blue = colluvial filled ravines that need to be over-excavated and back-filled



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International Building Code (1997)

- The International Code Council (ICC) **is based in Falls Church, VA. It was formed in 1994 by combining the three model American building codes published by the Building Officials Code Administrators (BOCA), founded in 1915; the International Conference of Building Officials (ICBO), founded in 1927; and the Southern Building Code Congress International (SBCCI), founded in 1940.**
- **The ICC produced the first edition of their International Building Code (IBC) in 1997, intended to be the new national standard for the United States. The 1997 IBC was based on the 1997 Uniform Building Code (UBC), but without the Chapter 33 Appendices for Excavation & Grading (these amendments are part of the California Building Code). Amendments to the new IBC were issued in 2000, 2003, 2006, and 2009.**
- **Forty-seven (47) states including Washington, DC, the U.S Department of Defense, and the National Park Service, had adopted the IBC or parts of it into government regulations by 2009. Local building code officials mainly regulate the enforcement of the IBC.**

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About the Presenter

Dr. Roy Letourneau (on left) and Dr. J. David Rogers (on right) in September 1997. Dr. Letourneau is the son of R. G. "Bob" Letourneau (1888-1969), the inventor of the modern bulldozer and scrapper. Rogers holds the Karl F. Hasselmann Chair in Geological Engineering at the Missouri University of Science & Technology. He can be contacted at rogersda@mst.edu

- Professor Rogers owned engineering consulting firms in Los Angeles and San Francisco and a general engineering contracting firm prior to entering academia.
- He served as Chair of the Building Codes Committee of the Association of Environmental & Engineering Geologists between 1990-97 and was AEG representative to the International Conference of Building Officials (ICBO) while the 1991, 1994 and 1997 UBC's and 2000 IBC were developed.
- Since 1984 he has taught short courses on grading and excavation codes for ICBO, the University of Wisconsin, University of California, the Association of Bay Area Governments and the City of Los Angeles.

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