

KUAT GESER TANAH

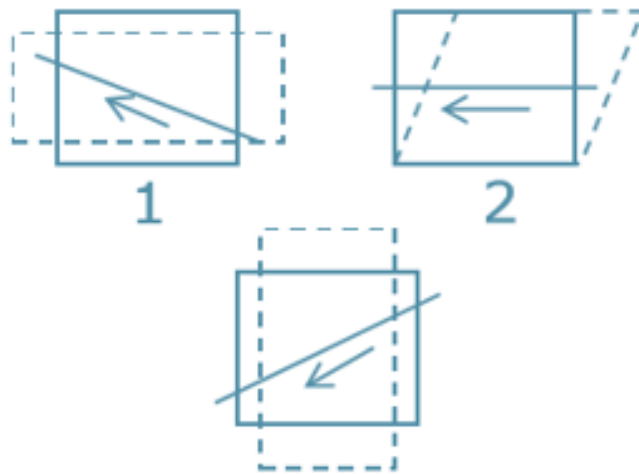
DR. IR. NURLY GOFAR, MSCE

Pendahuluan

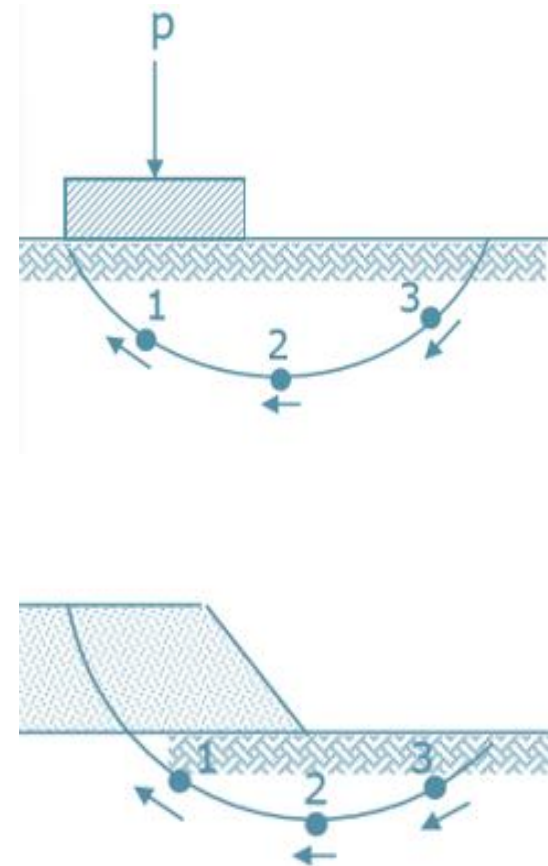
Seperti bahan lainnya, tanah akan mengalami keruntuhan apabila dibebani terus menerus dengan beban yang di luar batas kemampuannya. Batas kemampuan tanah untuk menahan beban disebut Kekuatan Geser.

Tipe tipe keruntuhan yang memerlukan evaluasi kuat geser

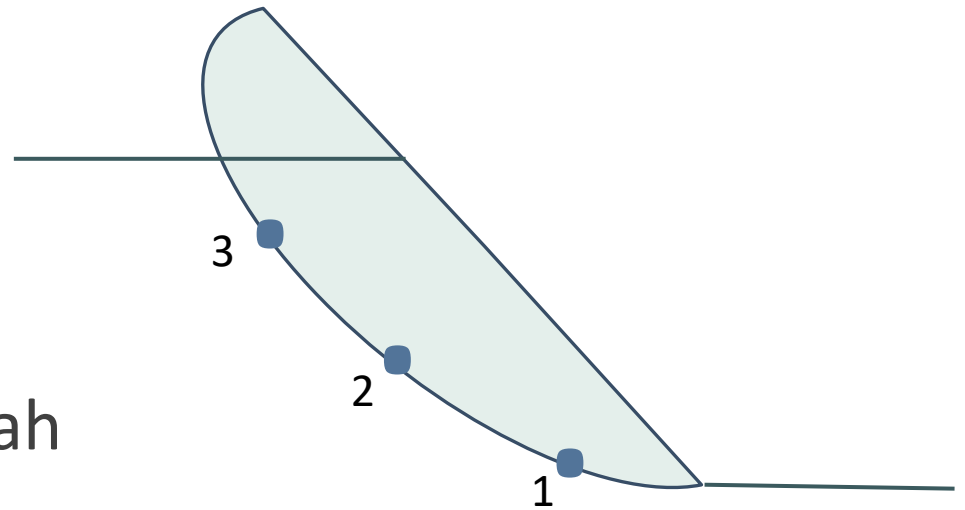
1. Daya dukung Pondasi
2. Timbunan / Embankment



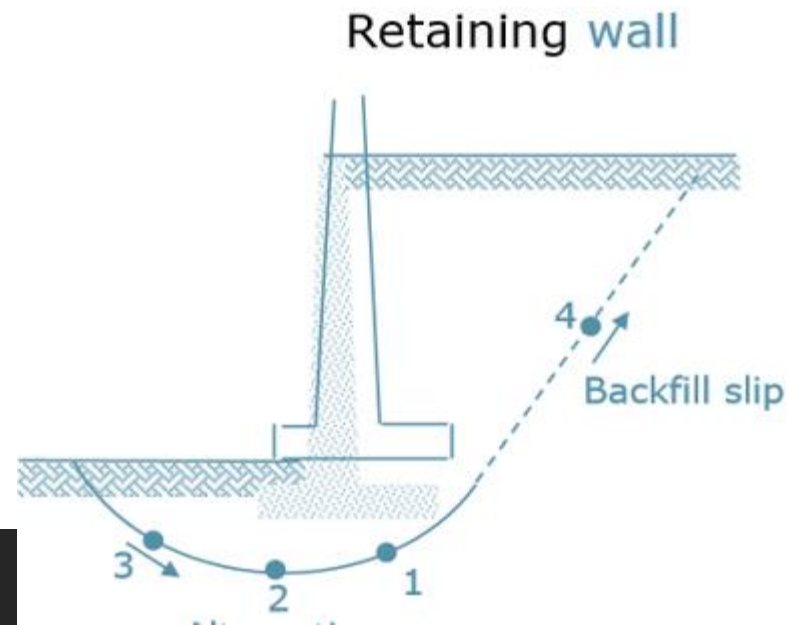
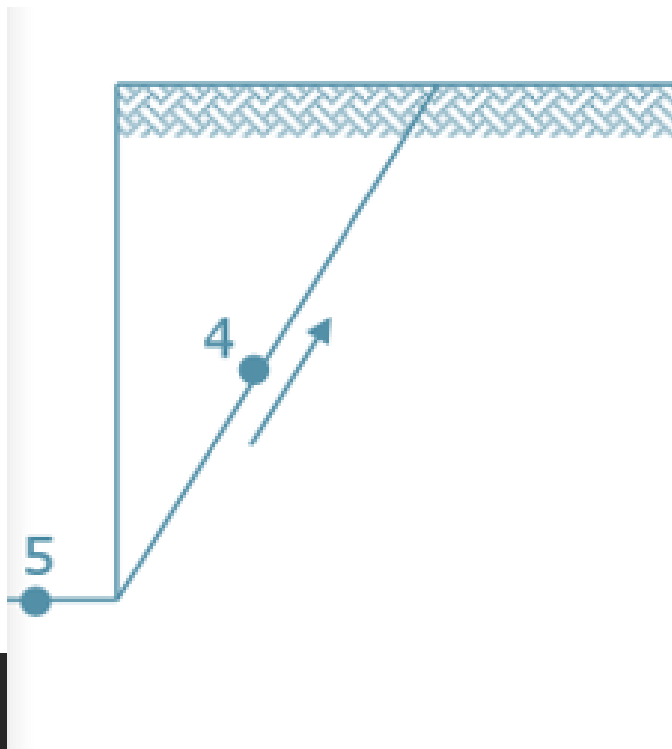
3
Element enlargements and corresponding shear



1. Analisis Stabilitas Lereng



2. Dinding Penahan Tanah



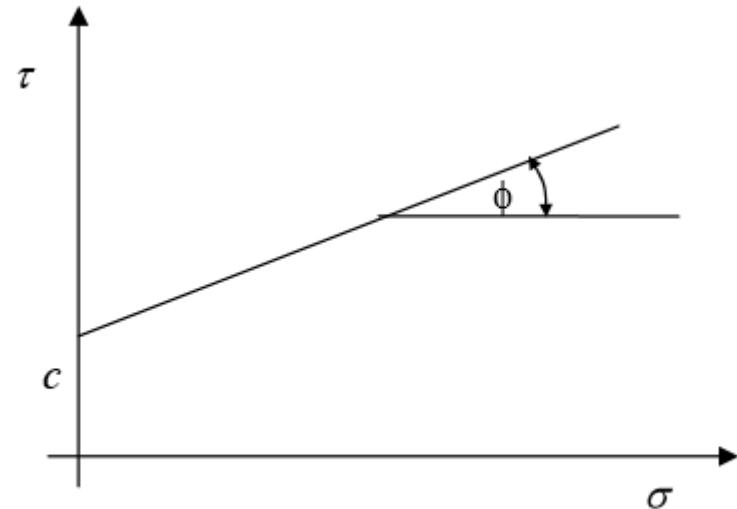
Parameter kuat geser :

- kohesi (c)
- sudut geser (ϕ)

Kriteria keruntuhan Mohr-Coulomb :

$$\tau_f = c + \sigma_f \tan \phi$$

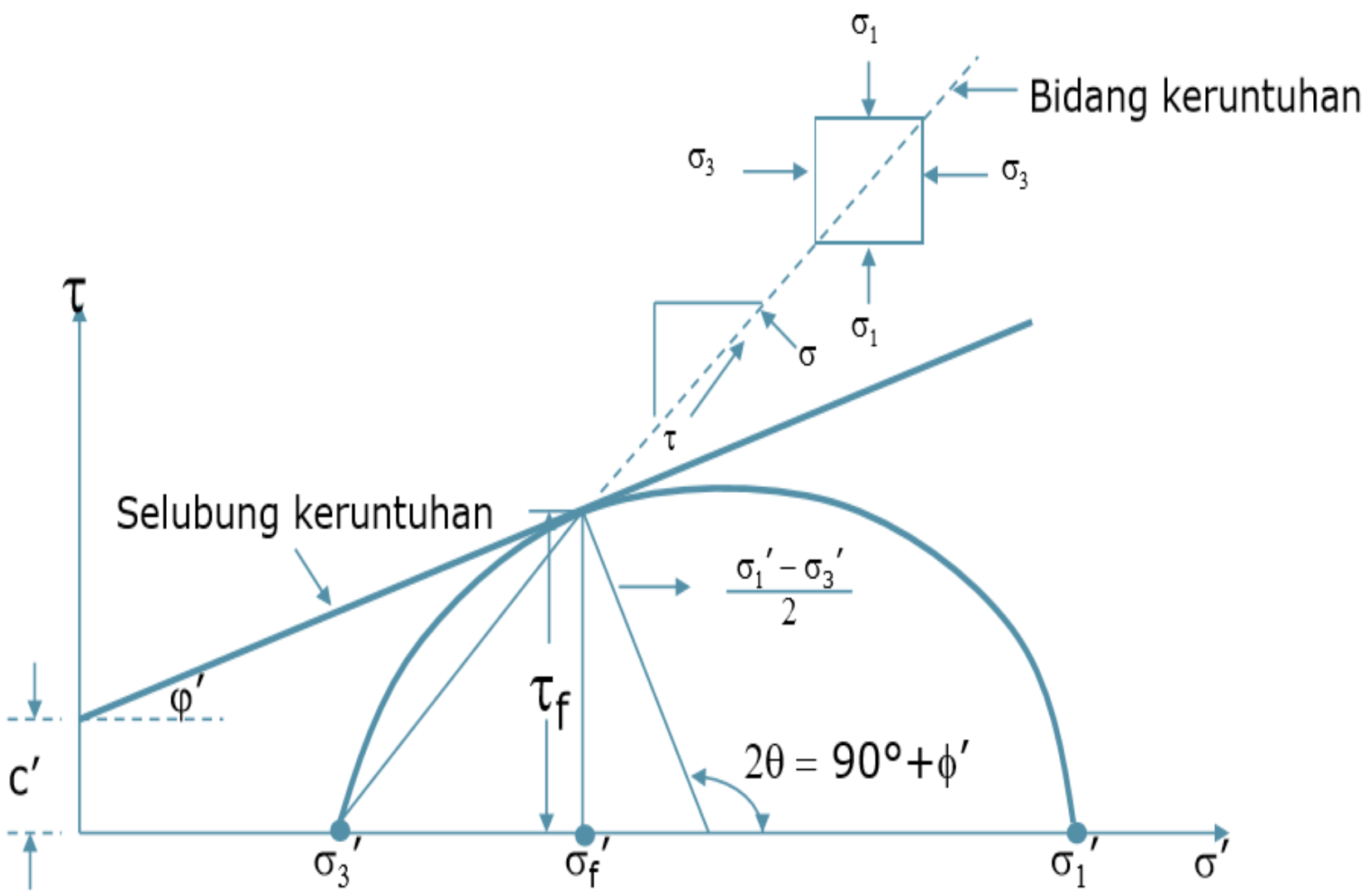
- τ_f : kuat geser
c : kohesi
 σ_f : tegangan norm
 ϕ : sudut geser



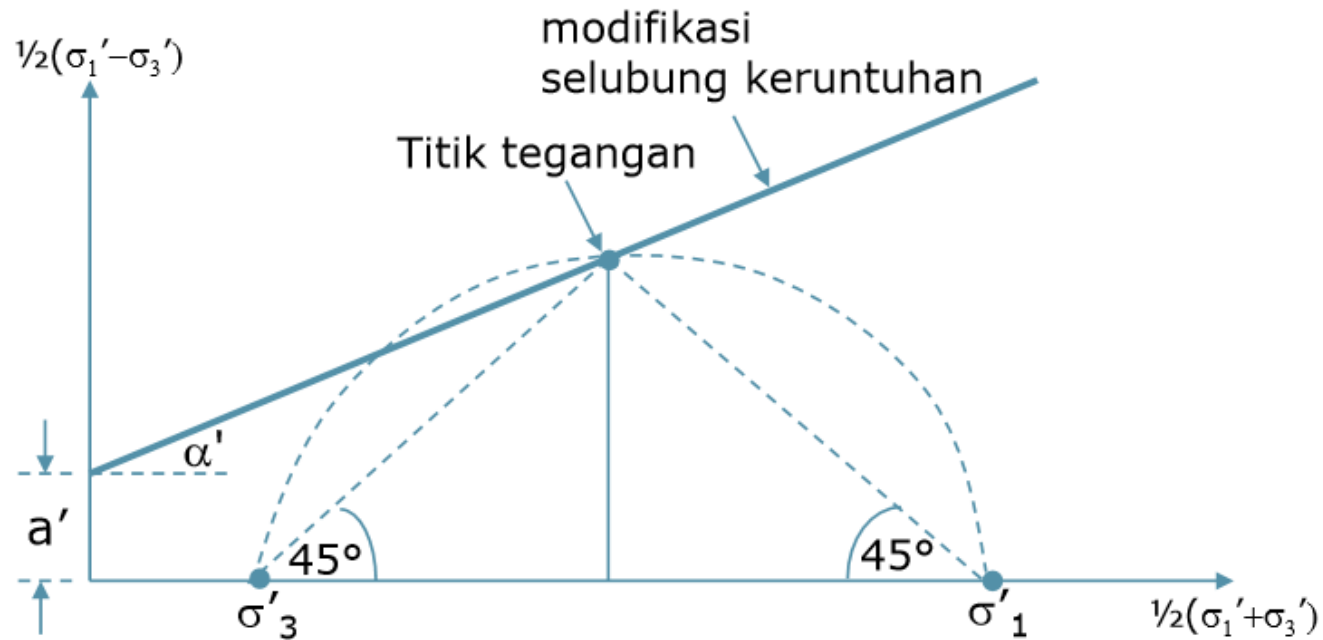
Dalam bentuk tegangan efektif :

$$\tau_f = c' + \sigma_f' \tan \phi'$$

KONDISI TEGANGAN SAAT RUNTUH



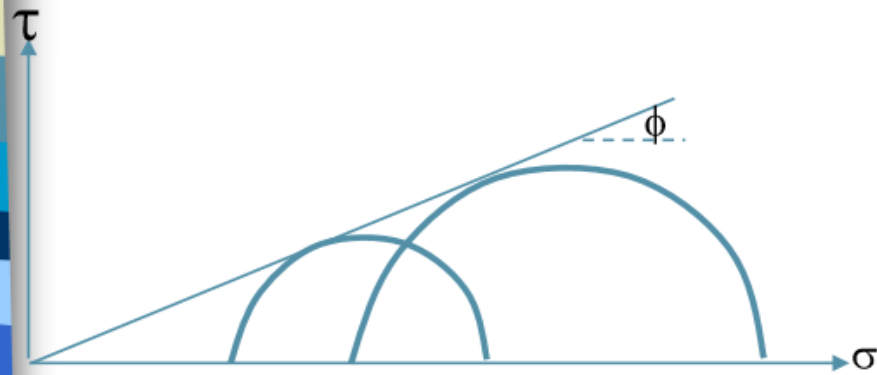
ALTERNATIF GAMBARAN KONDISI TEGANGAN



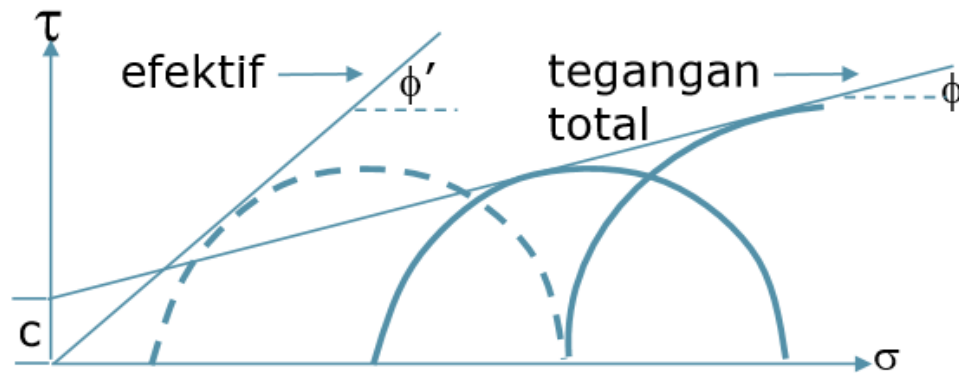
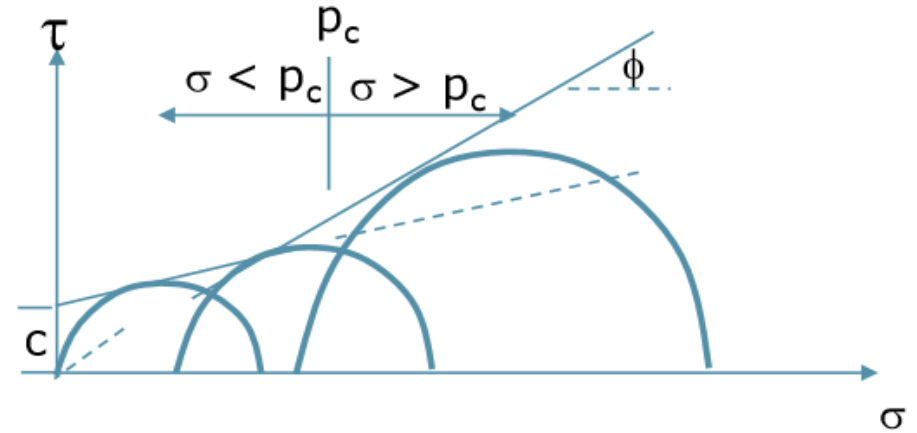
$$\phi' = \sin^{-1}(\tan \alpha')$$

$$c' = \frac{a'}{\cos \phi}$$

LINGKARAN MOHR UNTUK BEBERAPA KASUS



Tanah non kohesif



Parameter tegangan efektif