

FORMULAE - LECTURE 7

Modified Cam Clay (MCC) model

$$d\varepsilon_v^e = \frac{\kappa}{vp'} dp'$$

$$d\varepsilon_d^e = \frac{dq}{3G}$$

$$F = q^2 - M^2[p'(p'_0 - p')] = 0$$

$$g = F = q^2 - M^2[p'(p'_0 - p')] = 0$$

$$\frac{dp'_0}{p'_0} = \frac{v}{\lambda - \kappa} d\varepsilon_v^p$$

$$\begin{pmatrix} \delta p' \\ \delta q \end{pmatrix} = \begin{bmatrix} \begin{pmatrix} \frac{vp'}{\kappa} & 0 \\ 0 & 3G \end{pmatrix} - \frac{\begin{pmatrix} \left(\frac{vp'}{\kappa}\right)^2 (2p' - p'_0)^2 & \frac{6Gvp'q(2p' - p'_0)}{M^2\kappa} \\ \frac{6Gvp'q(2p' - p'_0)}{M^2\kappa} & \frac{36G^2q^2}{M^4} \end{pmatrix}}{\frac{vp'}{\kappa}(2p' - p'_0)^2 + \frac{12Gq^2}{M^4} + \frac{vp'p'_0(2p' - p'_0)}{\lambda - \kappa}} \end{bmatrix} \begin{pmatrix} \delta\varepsilon_v \\ \delta\varepsilon_d \end{pmatrix}$$