



Safety Factor Against Sliding

$$\text{S.F.} = \frac{\text{Resisting Forces}}{\text{Driving Force}} = \frac{F_R}{F_D} = \frac{[\sum W_{gn} + \sum W_{sn}] + P \sin \beta}{P \cos \beta} \tan \phi \geq 1.5$$

Safety Factor Against Rotation About Pt. O

$$\text{S.F.} = \frac{\text{Resisting Moments}}{\text{Driving Moments}} = \frac{M_R}{M_D} = \frac{(\sum W_{gn})(b) + \sum W_{sn}(a) + P \sin \beta (B)}{P \cos \beta (h/3)} \geq 2.0$$

where b = distance to gabion section center of gravity
a = distance to soil block center of gravity

Bearing Pressure

$$\text{Base Pressure } (\sigma_v) = \frac{R}{B - 2e} \leq q \text{ allowable (allowable soil bearing capacity)}$$

$$\text{where } R = \sum W_{gn} + \sum W_{sn} + P \sin \beta, e = \text{eccentricity} = \frac{B}{2} - \frac{M_R - M_D}{R}$$

SLOPING BACKFILL - SIMPLIFIED EXAMPLE

Figure 68-5E