

AREMA Table 8-20-1. Granular Soils

| Descriptive Term for Relative Density | Standard Penetration Test Blows per Foot "N" |
|---------------------------------------|--|
| Very Loose | 0 - 4 |
| Loose | 4 - 10 |
| Medium | 10 - 30 |
| Dense | 30 - 50 |
| Very Dense | Over 50 |

AREMA Table 8-20-2. Silt and Clay Soils

| Descriptive Term for Consistency | Unconfined Compressive Strength Tons per Square Foot |
|----------------------------------|---|
| Very Soft | Less than 0.25 |
| Soft | 0.25 - 0.50 |
| Medium | 0.50 - 1.00 |
| Stiff | 1.00 - 2.00 |
| Very Stiff | 2.00 - 4.00 |
| Hard | Over 4.00 |

AREMA Table 8-20-3. Unit Weights of Soils, and Coefficients of Earth Pressure

| Type of Soil | Unit Weight of Moist Soil, γ (Note 1) | | Unit Weight of Submerged Soil, γ' (Note 1) | | Coefficient of Active Earth Pressure, K_A | | | | Coefficient of Passive Earth Pressure, K_p | | |
|---|---|---------|--|---------|---|--------------------------------|-----------------------------|----------|--|-----------------------------|----------|
| | Minimum | Maximum | Minimum | Maximum | For Backfill | For Soils in Place | Friction Angles (Note 2) | | For Soils in Place | Friction Angles (Note 2) | |
| | | | | | | | ϕ | δ | | ϕ | δ |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Clean Sand: | | | | | | | | | | | |
| Dense | 110 | 140 | 65 | 78 | | 0.20 | 38 | 20 | 9.0 | 38 | 25 |
| Medium | 110 | 130 | 60 | 68 | | 0.25 | 34 | 17 | 7.0 | 34 | 23 |
| Loose | 90 | 125 | 56 | 63 | 0.35 | 0.30 | 30 | 15 | 5.0 | 30 | 20 |
| Silty Sand: | | | | | | | | | | | |
| Dense | 110 | 150 | 70 | 88 | | 0.25 | | | 7.0 | | |
| Medium | 95 | 130 | 60 | 68 | | 0.30 | | | 5.0 | | |
| Loose | 80 | 125 | 50 | 63 | 0.50 | 0.35 | | | 3.0 | | |
| Silt and Clay (Note 3) | $\frac{165(1+w)}{1+2.65w}$ | | $\frac{103}{1+2.65w}$ | | 1.00 | $1 - \frac{q_u}{p + \gamma z}$ | | | $1 + \frac{q_u}{p + \gamma z}$ | | |
| <p>Note 1: In pounds per cubic foot.</p> <p>Note 2: These angles, expressed in degrees, are ϕ, the angle of internal friction, and δ, the angle of wall friction, and are used in estimating the coefficients under which they are listed.</p> <p>Note 3: The symbol γ represents γ or γ', whichever is applicable; p is the effective unit pressure on the top surface of the stratum; q_u is the unconfined compressive strength; w is the natural water content, in percentage of dry weight; and z is the depth below the top surface of the stratum.</p> | | | | | | | | | | | |