# APPROXIMATE ANGLE OF REPOSE FOR

# SLOPING THE SIDES OF EXCAVATIONS

Note: Clays, silts, loams or non-homogeneous soils require shoring and bracing.

The presence of ground water requires special treatment.









Ground Line



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| Maximum Allowable Slopes for Excavations |
| Soil or Rock Type | Maximum Allowable Slopes (H:V) 2 |
| Stable RockType A3Type B Type C | Vertical (90o)3/4:1 (53o)1:1 (45o)1 1/2:1 (34o) |
| Notes:1 Sloping or benching for excavations greater than 20-feet deep shall be designed by a registered professional engineer.2 Numbers in parentheses are angles expressed in degrees from the horizontal. Angles havebeen rounded off.3 A short-term maximum allowable slope of 1/2H:1V (63o) is allowed in excavations inType A soil that are 12-feet or less in depth. Short-term maximum allowable slopes for excavations greater than 12-feet in depth shall be 3/4H:1V (53o) |