PERMEATION GROUTING

Sustainable Technology

Permeation Grouting

Permeation Grouting is defined as a means of impregnating the voids within a soil or rock mass and thereby displacing water and air from the voids and replacing it with grout, without displacing the soil particles or widening the existing fissures in the rock.

Grouts are required to have high levels of fluidity and stability and in the case of high penetration particular grouts, contain extremely fine particles.

Grout materials include, by diminishing void size: cement based grouts with filler or foaming additives, cement, bentonite/cement, bentonite/cement with high penetration additives, microfine cement, silica gels and resins.

The principal purposes of permeation grouting are for waterproofing and strengthening the soil or rock and limitations are encountered only where voids become too small to allow grout penetration, at which point in the case of soils, alternative methods of treatment should be considered.

Permeation Grouting is strictly a low pressure operation aimed at impregnation of the soil or rock. Elevated pressures that exceed the lowest principal stress at the point of injection in the soil cause 'Claquage,' where a fissure in the soil is opened in a plane perpendicular to the minimum principal stress defeating the objective of impregnation. In rock elevated pressure in grout will encourage destabilization and segregation, resulting in decreased effectiveness of the grouting process. Pressures must be contained to avoid this phenomena.

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