RAS COLUMN
For Large Diameter, Homogenous Column Improvement

Large Diameter and Homogenous Improvement with RAS Column

RAS Column is an advanced deep soil mixing method based on mechanical soil mixing technology to produce soil-cement column of 1.4 to 2.5 m diameter.

The mixing head is equipped with the counter rotation mechanism where the bottom auger and mixing blades rotate clockwise while the upper mixing blades rotate counter-clockwise. This unique mechanism efficiently breaks and mixes in-situ soil with cement-based reagents, producing more homogenous and higher quality soil-cement columns. It completely eliminates the "turning together" problem, often encountered by conventional mechanical soil mixing methods, that cohesive soil co-rotates with the mixing head, causing insufficient mixing and unexpected deficiency of columns.

RAS Column efficiently improves foundation soil of building and civil engineering structure to increase bearing capacity and prevent liquefaction.

Advantages

1. Applicable to a wide range of soils, providing excellent quality improvement.
2. Large diameter column improvement of dia. 1.4m to 2.5m
3. Uniform mixing and homogenous product quality due to counter-rotation mechanism
4. Computer-based control and monitoring system ensures quality improvement
5. Improvement efficiency in product strength and production speed saves on cost.
6. Flexibly adaptable to site-specific improvement requirements
7. Low noise and low vibration system

Application

Improvement of Foundation Soil

- for buildings
- for tanks
- for retaining walls
- for culverts

Tank Foundation

Building Foundation

Embankment Protection

- To prevent Liquefaction
- To prevent Settlement
- To prevent Slip failure of embankment
- To prevent uplifting
- To construct subsurface strut

Improved Column

![improved_column_image]
### Construction Process

- **Rig positioning**: Position the rig at a marked point.
- **Penetration**: After passing the dry excavation zone, start injecting slurry. Drill down and mix with in-situ soil to a specified depth.
- **Churning**: Move the head up and down to mix thoroughly so that each part of the soil receives the pre-defined number of cuts by mixing blades.
- **Completion**: Withdraw the head and complete a soil cement column.

### Control System

- **RAS Column Construction**
  - Slurry plant
  - RAS column machine
- **Data Processing**
  - Display unit
  - Control unit
- **Data Collection**
  - Depth and Speed
  - Rotation for inner rod
  - Rotation for outer rod
  - Electric Current