

Solidification Treatment Methods

Solidification Treatment Methods improve the properties and strength of soil chemically by mixing cement-base or lime-base solidifier/stabilizer in a slurry or powder form.

These methods are divided into two groups: the Ground Improvement Method Group, which improves the bearing capacity and stability of natural ground such as CDM, DJM, wing-system solidification, and infiltration solidification methods.

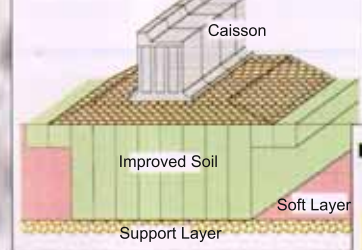
The other one is the Soil Improvement Group, which adds suitable dynamic characteristics to surplus soil such as premixing, pipe mixing and Paclay methods.

Features

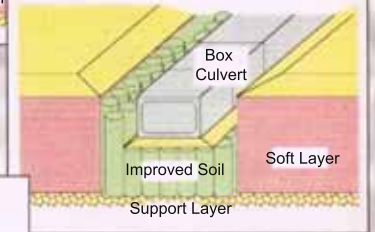
1. These methods are applicable to various types of soil including cohesive soil and mud, both of which containing high moisture.
2. Using the soil improvement methods, surplus soil from the construction sites can be used positively and effectively.
3. The infiltration consolidation method aims to prevent liquefaction by directly feeding of permanent-type chemical solution into sandy ground below an existing structure.
4. The pipe mixing method is by adding solidifier to dredged material through pipe and mixing together.
5. The Paclay allows reclaimed sand and soil to be prevented from being suctioned out from behind of the revetment at a substantial depth.

Examples of Application

Foundation Ground Improvement for Breakwater (CDM Method)



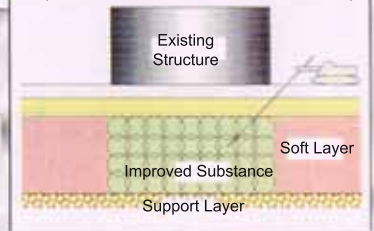
Foundation Ground Improvement for Underground Structure (DJM Method)



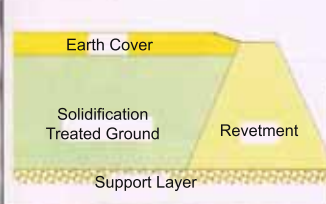
Measure Taken for Existing Road (Wing-System Solidification Method)



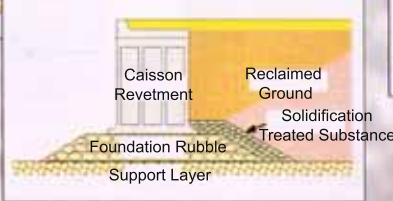
Countermeasure for Liquefaction Directly Below Existing Structure (Infiltration Solidification Method)



Stabilization of Reclamation Ground (Premixing Method, Pipe Mixing Method)



Leak Prevention Work for Composite Breakwater Revetment (Paclay)



Applicable Types of Soil/ Types and Specifications of Solidifiers

Method Name			Applicable Soil			Soil to be Improved		Type of Solidifier
			Sandy Soil	Cohesive Soil	Organic Soil	Natural Ground	Displaced Soil	
Solidification Treatment Methods	Deep Mixing Method	CDM Method	●	●	●	●		Cement-Base
		DJM Method	●	●	●	●		//
	Wing-System Solidification Method		●	●	●	●		//
	Infiltration Solidification Method		●			●		Special Silica
	Pre-Mixing Method		●				●	Cement-Base
	Pipe Mixing Method			●	●		●	//
	Paclay		●	●	●		●	//
	Solidification Treatment Method using Lime Ash, etc.		●	●	●	●	●	Lime Ash & Others