Infiltration Solidification Method

The Infiltration Solidification Method aims to increase the strength of ground foundation of a structure against liquefaction by feeding chemical solution to infiltrate extensively and solidifies the ground that likely to be liquefied. By this method, pore water in sand is replaced by a gel-like substance increasing the ground strength to about 50 ~ 200 kN/m², preventing the occurrence of ground liquefaction.

- Ground right below the existing structure can be treated.
- Minimum environmental impact as improved soil becomes substantially neutral (pH=6 to 7).
- Maintains the strength of improved ground by a dosed of permanent-type chemical solution. The solution has higher permeability than conventional equivalents and ensures improvement without using high pressure.
- Workable in a very limited site area

### Working Procedure

1. Drilling of Hole by Boring Machine
2. Pitching of Feeding Pipes
3. Feeding of Chemical Solution
4. Completion

### Equipment to Be Used

- Small Boring Machine
- Feeding Pipe Pitching
- Improvement in Progress (Field Positive Test)
- Conceptual Drawing of Improvement of Existing Structure

### Completed Projects Record

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Duration</th>
<th>Project Site</th>
<th>Client</th>
<th>Objective</th>
<th>Improvement in Volume</th>
<th>Amount of Chemical Dosing</th>
<th>Site Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo International Airport New Runway &quot;B&quot; Ground Improvement and Other Projects</td>
<td>99.3 ~ 00.3</td>
<td>Tokyo</td>
<td>Transport Ministry</td>
<td>Measure to counter liquefaction of ground right below runway</td>
<td>21,200 m³</td>
<td>12,615 m³</td>
<td>qu = 70 kN/m²</td>
</tr>
<tr>
<td>Ishikari Bay New Port 10 m Quaywall (Corner Section) Improvement Work</td>
<td>99.12 ~ 00.3</td>
<td>Ishikari</td>
<td>Hokkaido Development Bureau</td>
<td>Measure to counter liquefaction of ground right below runway</td>
<td>10,300 m³</td>
<td>3,900 m³</td>
<td>qu = 100 kN/m²</td>
</tr>
<tr>
<td>Ishikari Bay New Port 10 m Quaywall (B&quot; section) Improvement and a Series of Other Projects</td>
<td>00.3 ~ 00.9</td>
<td>Ishikari</td>
<td>Hokkaido Development Bureau</td>
<td>Measure to counter liquefaction of ground right below runway</td>
<td>9,500 m³</td>
<td>4,200 m³</td>
<td>qu = 100 kN/m²</td>
</tr>
<tr>
<td>Port Repair Work (Phase 7)</td>
<td>00.3 ~ 00.10</td>
<td>Fujisawa</td>
<td>Kanagawa Prefecture</td>
<td>Measure to counter liquefaction of ground right below runway</td>
<td>2,800 m³</td>
<td>1,143 m³</td>
<td>qu = 90 kN/m²</td>
</tr>
<tr>
<td>Nishikawa Second Drainage Plant Construction Work</td>
<td>00.7 ~ 00.8</td>
<td>Nigata</td>
<td>Construction Ministry</td>
<td>Measure to counter liquefaction of ground right below runway</td>
<td>1,400 m³</td>
<td>560 m³</td>
<td>qu = 100 kN/m²</td>
</tr>
</tbody>
</table>