**HAAGA SPORTS PARK**
Haaga, Helsinki, Finland
Sports field and residential area subgrade reinforcement

Key words:
Sports field and residential area,
column stabilization, mass stabilization

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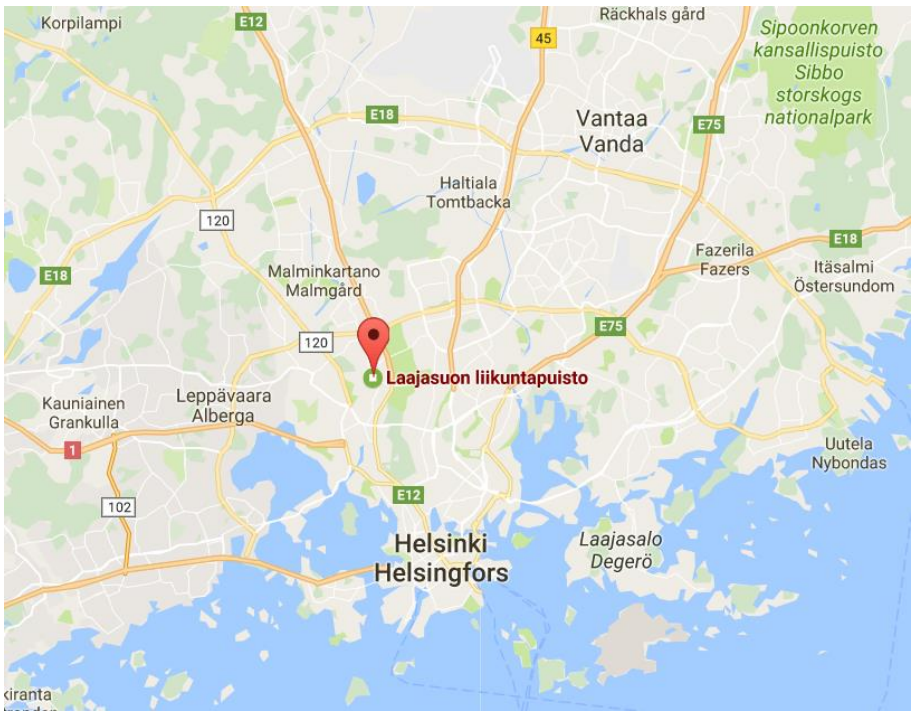
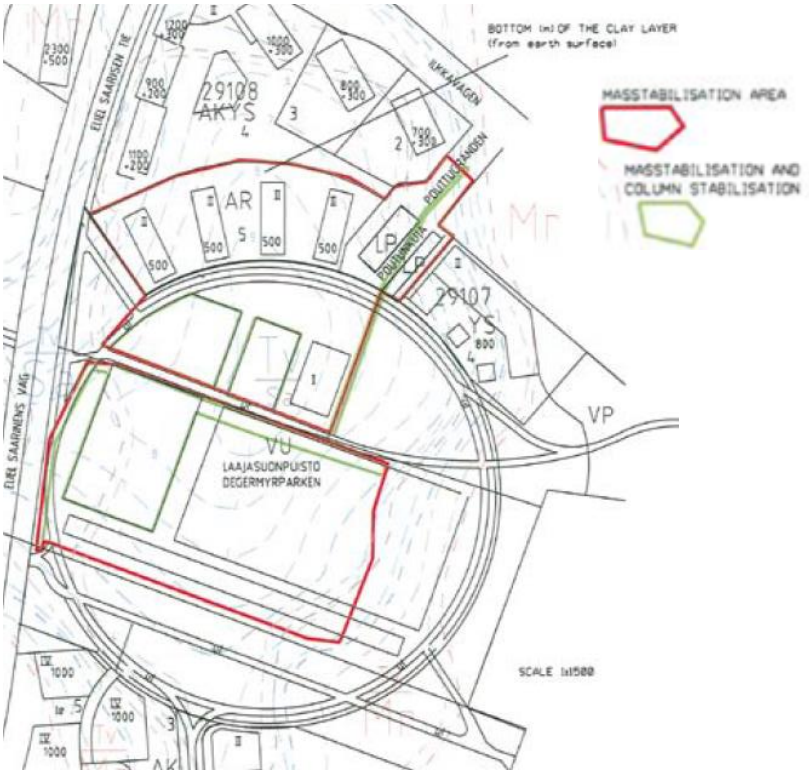
| **General information** | The peaty swamp area in Laajasuo, middle-Haaga was turned into sports field and residential area. The subgrade reinforcement was done with combination of mass and column stabilization. |
| **Advantages of stabilization** | Construction on very soft subsoil was enabled with mass stabilization without remarkable mass exchanges or pile slabs as a foundation structure. |
| **Project timetable** | 2005-2007 |
| **Volumes and dimensions** | Mass stabilization: 78 000 m³. Columns: total length 14 000 m, diameter 700 mm |
| **Geology and stabilized material** | The ground consists of four different soft layers: peat layer (2 – 3.5 m) clayey mud (0.3 – 1m), silty sand (0.2 – 0.6 m) and soft clay (0 – 5 m). Under these layers there are sand and moraine layers. The maximum depth of soft soils is approximately 11 m. |
| **Target strength of the stabilized material** | Mass stabilization: The shear strength was 50 kPa. Column stabilization: The clay layer underneath the peat and mud was column stabilised. The target shear strength of the columns was 100 kPa. |
| **Binder(s)** | Cement (CEM II / A-M (S-LL) 42,5 N) 120 kg/m³ and 150 kg/m³ is used as a binder in mass stabilization. |
| **Laboratory and field tests** | Quality control soundings were done by the contractor and the client to confirm the shear strength of the stabilised mass and homogeneity. The binder content of the mass was also monitored with laboratory samples and portable x-ray fluorescence device on site. Settlements were monitored with settlement plates and with flexible settlement tubes. |
| **Other** | The thickness of the compression embankment was 0.5 –1.5 m over the stabilised peat and the preloading was carried out at least 6 - 12 months before construction. |
| **Long-term follow-up and lessons learned** | - |
| **Sources** | ALLU Mass stabilization manual |
| **Stabilization contractor** | - |




The planned stabilized areas




Aerial picture from condition after construction of the Haaga sports park