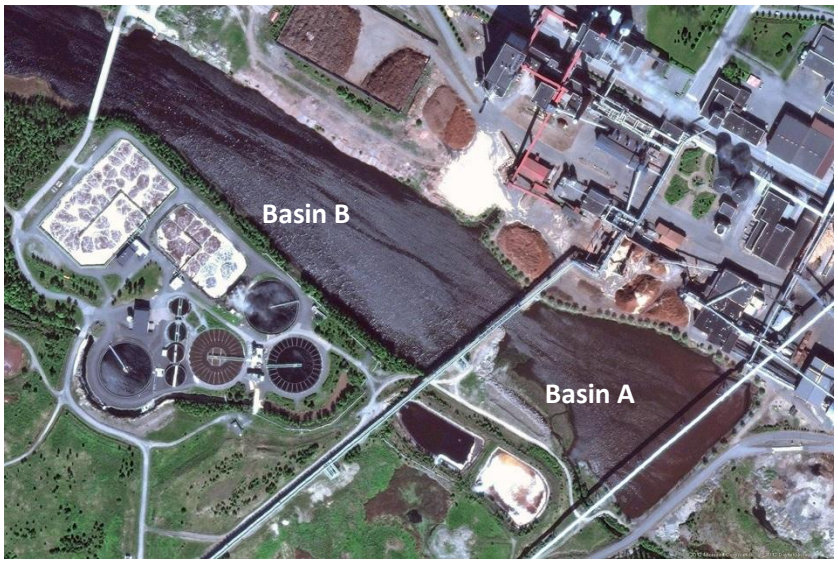
Avainsanat: ruoppausmassa, pohjatuhka, lentotuhka, kalkkijäte, kaoliinisavi

CASE SAMPAANALA BAY, BASIN A

SAMPAANALA BAY, BASIN A Sampaanala, Rauma, Finland Coastal bay filling and storage field construction	Key words: Field construction, water body filling, sediment stabilization
General information	The coastal bay in Sampaanala, Rauma was filled and the subgrade was stabilized for storage field use. At the starting point the bay had water depth varies between 0-3,5 meter and the maximum depth of the sediment was ~17 m. The utilization of the area with traditional methods like mass exchange and filling would have been really expensive. The working order in project area was: 1. Screening the debris 2. Improving the base material 3. Pre mixing of the masses 4. Mass stabilization 5. Geotextile installation 6. Preload embankment
Advantages of stabilization	With mass stabilization technique the subgrade reinforcement of soft sediment could be carried out in an economical way and the area was obtained for storage use for the nearby pulp and paper industry. In addition, the industrial waste fractions from nearby industry could be utilized on site.
Project timetable	Field tests in 2012, mass stabilization in 2013.
Volumes and dimensions	Stabilized area in basin A was 3,5 hectares, the total volume of the stabilized mass was 145 000 m^3. The sediment was stabilized to 5-7 meter depth. The thickness of the preload embankment was 1 m.
Geology and stabilized material	The original sediment in Sampaanala bay contained clay and organic mud in 10-17m depth. Other surplus soils and industrial wastes e.g. bottom ash and lime waste was mixed in the sediment.
Target strength of the stabilized material	The target compression strength for the stabilized material was 80-100 kPa (shear strength ~40 kPa)
Binder(s)	Cement+ dry fly ash 50:50 - 260 kg/m^3. Aged fly ash, lime waste, and kaolin clay was also added to base material. Approximately 15 000 ton of cement, 120 000 ton of fly ash and 170 000 ton of kaolin+other materials were used in basin A.
Laboratory and field tests	Laboratory tests included geotechnical properties of stabilized material, binder optimization and frost behavior studies of stabilized material. The environmental monitoring was done in surrounding water body during the construction. During and after stabilisation quality control and quality assurance were also conducted.
Other	According to quality control the targeted shear strength was achieved nearly all areas.
Long-term follow-up and lessons learned	Storing of dry fly ash from the local power plant was tested in tent hall. The method was found functional and relatively cheap for short time storage of fly ash.
Sources	-
Stabilization contractor	Lemminkäinen Oy

Aerial picture of Sampaanala Bay



Stabilization work ongoing in Sampaanala Bay

Stabilized and pre-loaded basin A