

HANEDA D-Runway Report (No.11) LAND RECLAMATION

March 2010

Tokyo International Airport (HANEDA Airport)
HANEDA Airport Construction Office
<http://www.pa.ktr.mlit.go.jp/haneda>

LAND RECLAMATION

Land reclamation is one of major construction works in this project. The area of land reclamation is about 2km long, 0.5km wide and 1km² in total. The volume of land reclamation and banking ground reached about 53 million m³ including seabed improvement and rubble mound of sea walls.

The elevation or height of ground banking is ranging from +13m to +17m above sea level to avoid interference of airways by large and tall container ships nearby which are coming in and leaving the port of Tokyo through a channel.

Here, reclamation and banking materials are 1) sands and stones: 22 million m³ for last one year and a half at the final stage and 2) lightweight cement treated dredged soils with air: 0.9 million m³ / without air: 5.2 million m³.

SPEED OF RECLAMATION

Under about 3 year's construction period of this project, it took almost a year as a first step to improve sea bed ground by sand-compaction-pile method for foundation of rubble stone sea walls, vertical sand drain method for land reclamation afterwards, and deep cement mixing method for foundation of caisson type sea walls. Then, it took half a year to construct sea walls by rubble stones and concrete blocks. Therefore, only about a year and a half had left for land reclamation and banking of 22 million m³ of sands, stones at the final stage excluding lightweight cement treated dredged soils.

According to the rest of construction period of 1.8 months, the volume of land reclamation and banking ground is calculated as about 1.2 million m³ per a month, which is equivalent to about 50 thousand m³ per a day by many vessels, that is depending on land transportation by about 7 thousand normal dump trucks through ordinary roads and toll ways. Thanks to "weather" and "many efforts" by many people concerned, land reclamation and banking ground have finished safely in February 2010.

RECYCLE MATERIALS

As characteristics of land reclamation in this project, cement treated dredged soils of about 6 million m³ are used, which are very "light and strong" recycle materials. One is a cement treated dredged soil which is heavier than water but lighter than ordinary soils. Another is a cement treated dredged soil with air which is called "Super Geo Material". The SGM is very light and almost the same weight with water. These soils are used as land reclamation materials behind sea walls including the part just beneath a runway and a taxiway, and these soils are very effective to reduce consolidation settlement and to avoid ground failure of sea walls. (To be continued)

