



VOLTRI PORT FILL MATERIALS

Italy, 1985

PROJECT CHARACTERISTICS

Works: Study of a convenient supply of rock for the filling of the new Voltri port of Genoa, their exploitation and transport to the seaside.

Purpose: Rockfill to create a high bearing capacity platform at the back of the wharves and to support harbour structures.

Dimensions:

- *volume:* 29 000 000 000 m³
Fill poured in water depth up to 30 m deep

Materials:

- Calc-schist and ophiolite obtained from a large open-air excavation



PROFESSIONAL SERVICES PERFORMED

Identification and geotechnical characterisation of 3 alternative quarries. Detailed design of the quarry, definition of the excavation process, of the drilling and loading equipment. Design of alternate hauling roads and hauling equipment fleet and of a conveyance belt system, environmental preservation and landscaping measures. Cost estimate.

In 1981, the design for the New Port Voltri, near Genoa, was approved. In 1985, in collaboration with MARCONSULT, a study has been carried out for the identification of sources, exploitation, and conveyance of rock materials for the port. The retrieval and conveyance of large quantities of rock materials in the Genoa hinterland is a considerable problem because of the vicinity of the city, of the great environmental value of the Ligurian coast and the presence of national roads, motorways and railways. After a preliminary study, which led to the identification of the 2 suitable sources of rock materials, a detailed parametric study, which examined different combinations of quarries, conveyance systems and quarrying volumes, was carried out. The 2 alternate areas were studied in their geological and geotechnical aspects and detailed with drawings showing quarry layout and details of roads and conveyor belts as well as situation of the areas at the end of works. The analysis of all possible solutions and their costs led to selecting a quarry located North of Voltri and a conveyance by means of conveyor belts.

