

# PROJECT SHEET

## PORT OF GENOA

DEEPENING AND EXTENDING THE PORT OF GENOA, ITALY

### INTRODUCTION

The deepening and extension of the port of Genoa is needed to accommodate the larger container vessels and the ferries of MSC.

The client is the Port Authority of Genoa. The project is being executed by Boskalis Italia S.r.l. in a joint venture with Tecnis S.p.A., an Italian company that is responsible for the construction work. The scope of the project includes building the new container terminal at Calata Bettolo using material obtained by dredging from the deepening of the inner basins of the Port of Genoa.

### SCOPE

The work has been split up into five phases. The project started in 2009 and will be completed in early 2014.

#### Phase I: Working on the first reclamation area A1 from July 2009 to September 2009

The Trailing Suction Hopper Dredger (TSHD) Astra pumped the material from the seabed to the reclamation area through a floating pipeline, spraying the material evenly over the area with a spray pontoon.

#### Phase II: Construction of the walls around area B1, work continues on filling up area A1, February 2010 to August 2010

Between February and June 2010, the backhoe Wodan dredged the seabed, and the barges Tiukka, Cara and Ada 5 transported the material to the reclamation area. Part of the dredged material was used to build the wall for the inner reclamation area. Between February and August, the TSHD Sospan dredged the seabed and pumped the material to the reclamation area using the same method used by the TSHD Astra in 2009. In this phase, the tug Rijnstroom also leveled out the seabed using a plough.

### FEATURES

Client	Port Authority of Genoa
Location	Genoa, Italy
Period	2009 – 2014
Contractor	Boskalis Italia S.r.l.



- A overview of reclamation areas
- B the project in progress
- C the TSHD Shoalway at work in Genoa

#### Phase III: Completion of reclamation areas A1 and B1, November 2010 to late January 2011

The TSHD Shoalway dredged the seabed and completed reclamation areas A1 and B1.

#### Phase IV: Deepening of the existing turning basin from June 2012 to November 2012

The fourth phase covered the deepening of the existing turning basin, which is located in the historical part of the port. This was the most challenging aspect of this project, involving the use of intrusive dredging techniques such as drilling and blasting in an area that has been one of the driving forces of the city's economy for several centuries. This part of the port combines both commercial navigation and yachting, resulting in active marine traffic which had to remain undisturbed during the different phases of the operations. This





challenge was handled successfully in partnership with Terramare, the Boskalis Finnish subsidiary. The backhoe Maricavor and two Terramare blasting pontoons removed a total of 110,000 m<sup>3</sup>. The dredged material was also used for the reclamation of land for the container terminal of Calata Bettolo. This optimized the construction processes by achieving a range of construction goals at the same time.

Phase V: Deepening the access channel and reclaiming area C1, the last part of Calata Bettolo, early 2014

The final phase of the project will be completed in early 2014. The last part of the Calata Bettolo basin, area C 1, will be closed off with caissons and the remaining area will be reclaimed using a medium-sized trailing suction hopper dredger.



The hopper will use the sand dredged earlier to deepen the access channel to -17m.

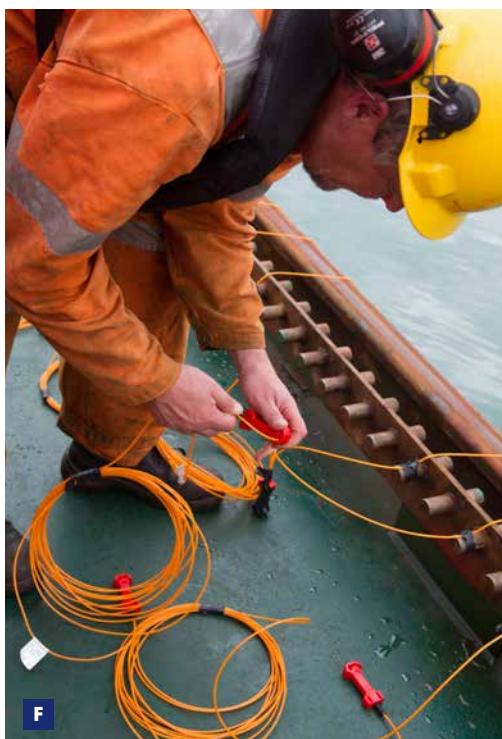
#### ENVIRONMENTAL CHALLENGES

An important part of the project consisted of dredging 2.2 million m<sup>3</sup> of contaminated sludge from various basins in the port of Genoa and the Porto Petroli di Multedo, and land reclamation for the construction of a container terminal in Calata Bettolo. To prevent the contamination of the groundwater and the port basins, the dredged material was moved to three large basins, each of which were lined with 2-mm-thick HDPE Geomembrane.

#### SAFETY CHALLENGES

The high level of flexibility and excellent communications of the workforce on site contributed to the success of the work. The project team consisted of staff from Finland, Italy, France, Turkey and the Netherlands.

The main challenge was to maintain high safety standards while working in a very busy port area. The application of NINA rules and regulations made this possible.



- D One of the Terramare blasting pontoons
- E The backhoe Maricavor deepening the turning basin
- F Preparing the explosives on board the Terramare blasting pontoon
- G Using a plough, the tugboat Rijnstroom leveled out the seabed.