

BARCELONA METRO

BARCELONA - SPAIN

Monitoring of the city of Barcelona over 40 km during the construction of the line 9 metro tunnel and stations.

The city of Barcelona has decided to develop before 2010 its metropolitan network by building a new line providing services to the future high speed train station, the suburb of the city, and the new airport of Barcelona.

The line 9

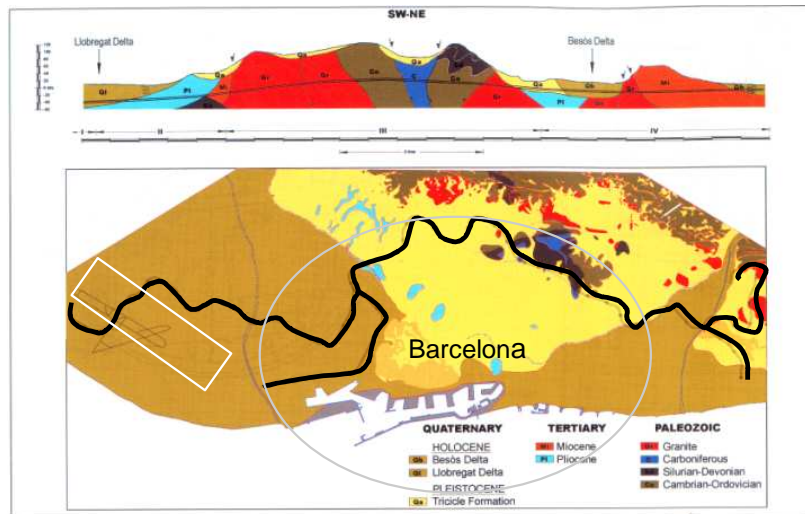
The new line is 41400 m long with 43 stations. An innovative technical solution including a single 12 m-diameter tunnel was chosen. The metro will circulate on two levels. Each level will be dedicated to a direction of traffic.

The layout of the tunnel, whose depth varies between 15 m and 60 m, passes in the alluvial plains under the rivers Llobregat and Besos, and goes through many sensitive geological interfaces

The line 9 monitoring contract

The monitoring contract of the whole project has been awarded to the SolData Iberia - T5IIC joint-venture.

The monitoring includes: the buildings, structures, ground, underground, the tunnel itself, and the access wells. It covers all the geometrical, topographic, geotechnical, hydrogeological, thermal and vibratory aspects of the project, and includes the sensors and acquisition systems supply, the installation of instruments and the synthesis of the information for the customer.



Figures 7 & 8 - Geological plan and profile

OWNER:	GENERALITAT DE CATALUNYA
JOINT VENTURE :	SOLDATA IBERIA T5IIC
CONSULTANT :	PAYMACOTAS
DATE OF WORKS:	AUGUST 2003 – AUGUST 2007
WORKS DONE:	<ul style="list-style-type: none"> • Real time monitoring of 18 000 buildings • Follow-up of the 40 000 m-tunnel deformations • 600 CYCLOPS positions • 4320 instruments in real time • Manual levelling of more than 10 000 measure points • 17 000 ml of boreholes equipped with piezometers and inclinometers • Centralization of all the measures on GEOSCOPE.